NATIONAL PETROLEUM RESERVE IN ALASKA

HISTORY OF DRILLING OPERATIONS

U. S. NAVY

SOUTH BARROW WELL NO. 14

HUSKY OIL NPR OPERATIONS, INC.
Prepared by: Drilling Department
Edited by: S. L. Hewitt and Gordon W. Legg

For the

U. S. GEOLOGICAL SURVEY Office of the National Petroleum Reserve in Alaska Department of the Interior JANUARY 1983

TABLE OF CONTENTS

<u> </u>	'age
INTRODUCTION	1
DRILLING SUMMARY	2
GOVERNMENT FORMS AND REPORTS Application for Permit to Drill (USGS)	5 6
Request for Approval to Pull or Alter Casing (USGS)	7
Casing (State of Alaska)	8 9 11 13 14
Notice of Intent to Re-enter and Activate Suspended Well	15 16
LOCATION DATA As Staked Location Plat	17 18
DRILLING DATA Operations History	19 25 29 30 32
CASING DATA Casing Introduction	33 34 35 36 37 38 39
COMPLETION DATA Wellbore Schematic	40 41

Open Flow Potential Analysis	1-1
APPENDIX NO. II - Gas Analysis Report	
LIST OF FIGURES	
Figure 1, Well Location Map	1

SOUTH BARROW WELL NO. 14

INTRODUCTION

The U. S. Navy South Barrow Well No. 14 is located in the East Barrow Gas Field in the National Petroleum Reserve in Alaska, formerly Naval Petroleum Reserve No. 4 (Figure 1). The designation "East Barrow Gas Field" is now applied to those wells which were earlier identified as "South Barrow Gas Field, East Area". The South Barrow Gas Field and the East Barrow Gas Field are now recognized as two separate fields. The well is located 2300' from the west line and 1800' from the north line of protracted Section 25, Township 22 North, Range 17 West, Umiat Meridian (Latitude: 71°13'58.79" North; Longitude: 156°18'11.02" West). The Alaska State Plane Coordinates are X = 699,955 and Y = 6,303,590, Zone 6. Elevations are 12' ground level, 17' drilling pad and 31' Kelly bushing. related operations started November 20, 1976, with mobilization of construction crews and equipment for the building of the drilling location. Rig-up operations began January 18, 1977, with the rig being moved from the South Barrow No. 13 location. Operations at South Barrow No. 14 ended on March 10, 1977.

The well was drilled to a total depth of 2,257 feet. The primary objectives of the well were the Barrow Gas sand and the Sag River Sandstone. At the conclusion of the drilling and evaluation operations, the well was killed with calcium-chloride water and a retrievable bridge plug set above the productive interval. The well was suspended as a productive natural gas well. A kill string was installed in the hole when the well was suspended.

Husky Oil NPR Operations, Inc. supervised and directed the drilling and completion operations as prime contractor for the Navy. Parco, Inc. was the labor contractor. The rig used was the Navy's Cardwell Model H.

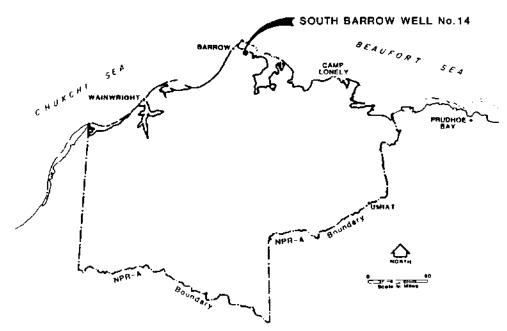


FIGURE 1 - WELL LOCATION MAP - SOUTH BARROW NO. 14

DRILLING SUMMARY

Field operations at the South Barrow No. 14 location were started on November 20, 1976, with the mobilization of construction crews and equipment required to build the drilling pad. The rig move from South Barrow No. 13 began on January 18, 1977, and actual placement of components and rig-up began the same day. Rig-up was completed in 10 days and the well spudded at 1:30 a.m., January 28, 1977.

Rig move operations were delayed somewhat due to the unavailability of equipment and condition of the support equipment used in the rig move. Some time was also lost during the drilling of the conductor hole. The locking pin which connected the drive sub to the auger dropped out resulting in a fishing job to retrieve the auger. The conductor hole was drilled to 53' KB, and 20" conductor was set and cemented to surface with 53 sacks of Permafrost cement. A 16" annular blowout preventer and diverter lines were installed on the 20" conductor.

A 13-1/2" hole was drilled from 53' to 1048'. Two 13-1/2" stabilizers were run in the drill string to limit deviation. The hole was logged from 1048' to the bottom of the 20" conductor with a DIL/SP and a BHC-Sonic/GR. After logging, 10-3/4" surface casing was run and landed at 1042'. The casing was cemented to surface with 760 sacks of Permafrost cement.

A 10" 3,000 psi blowout-preventer stack was installed on the 10-3/4" casing. Choke manifold and kill lines were also installed. The casing, blowout preventer, choke and kill lines were tested to 1,250 psi. The casing was drilled out with an 8-1/2" bit and the formation was tested to a 0.68 psi/ft. equivalent gradient.

An 8-1/2" hole was drilled to 1950'. The well was logged from 1950' back into the 10-3/4" shoe at 1042' as follows: DIL/SP; BHC-Sonic/GR; FDC/CNL/CAL/GR; and HDT-Dipmeter. The sidewall-core gun initially would not go below 1050'. The hole was conditioned and deepened to 1955'. The sidewall-core gun was again run, ten cores were shot and ten were recovered.

A 7" intermediate production casing string was run to 1947' and cemented to surface with 760 sacks Permafrost cement, tailed in with 125 sacks Class "G" cement. The float collar and shoe joint were drilled out leaving five feet of cement above the shoe. A CBL/VDL/CCL/GR log was run and it indicated an acceptable cement job behind the casing. In order to minimize possible formation damage, a calcium chloride-ligno-sulfonate mud system was mixed. To accomplish the mixing and conversion to the inhibitive mud, the mud mixing system had to be rebuilt and modified. The mud guns, jets, and mud line to the hopper were modified, requiring approximately one day to change over the mud.

The tubing head and blowout preventer had been nippled up prior to cleaning out the 7" casing. The casing and blowout preventer were tested to 1,250 psi. The shoe was drilled out with a 6" bit. The formation was tested to a 0.78 psi/ft, equivalent gradient.

A 6" hole was drilled from 1955' to 2257'. Drill Stem Test No. 1 was conducted on the way down over the interval 1947' to 2100', with a packer set in the 7" casing at 1890'. A 500 psi nitrogen cushion was used and bled off when the tool was opened to eliminate a sudden pressure differential on the formation. In summary, the well flowed gas at an approximate rate of 2.5 MMCFPD during the final flow period of the test.

A lost-circulation/gas-kick situation developed at 2257' while attempting to cut a core. The core barrel packed off while trying to break circulation on bottom and 60 barrels of mud were lost. The core barrel was pulled into the 7" shoe at 1947' and, while building mud weight and volume, the well kicked. Approximately 69 hours rig time were used to bring the well under control and a total of 550 barrels of mud were lost. The well was controlled with a 10.7 ppg mud containing 30% lost-circulation material. After controlling the well, an open-hole plug of 25 sacks of Class "G" cement (with 2% calcium-chloride accelerator) was spotted at 2257'. The top of the plug was tagged at 2114' and polished off to 2128'.

The open hole was logged from 2128' back into the casing shoe at 1947' as follows: DIL/SP; BHC-Sonic/GR; FDC/CNL/CAL/GR; DLL/SP; MLL; HDT-Dipmeter. Shot 11 sidewall cores and recovered 11.

At the conclusion of logging, the top of the plug was found at 2191', 63' deeper than its original depth. A second plug of 15 sacks of accelerated Class "G" cement was spotted at 2191' and the top dressed to 2130'. The lost-circulation material was cleaned from the mud system.

The hole was conditioned and a 5-1/2" slotted liner was run. On the first attempt, it would not go below 700'. After pulling it and repairing the Brown Oil Tools liner hanger and packer assembly, the liner was rerun and hung with the shoe at 2125'. The hanger was at 1826' and the packer at 1822'. The blowout preventers were tested to 1,400 psi and 2-7/8" tubing run to 2079' (tail 12' below lowest slots in 5-1/2" liner). The tree was nippled up and tested to 3,000 psi.

Preparations were made to conduct a multi-point back-pressure test on the well. The mud was reversed to calcium-chloride water in an attempt to flow the well. This failed, the calcium-chloride water was displaced with nitrogen to 600 psi, and the nitrogen bled off to bring the well in. The well was cleaned up by alternating the gas flow through the tubing and the annulus. Alcohol was injected into the tubing and annulus to prevent hydrate formation. The multi-point test was run and a 72-hour pressure buildup taken with bottom-hole recorders hung at 2073' on a wire line. At the conclusion of buildup, a static gradient survey was conducted. Calculated absolute open flow was 3.7 MMCFGPD. The test is detailed in Appendix 1. Also, an analysis of gas recovered is in Appendix 11.

After testing, the well was completed. The well was killed with 10.8 ppg calcium-chloride water and blowout preventers were nippled up and tested to 1,250 psi. The tubing was pulled, a retrievable bridge plug was run on the tubing, and was set at 1772'. One joint of tubing was laid down

and the tubing string was hung at 1754', with the bridge plug running tool on the bottom. The tree was nippled up and tested to 3,000 psi. The rig was released at 7:00 a.m., March 1, 1977.

A wellhead shelter was constructed and placed over the wellhead.

All logs from the South Barrow Gas Field were recorded on magnetic tape, and computer log interpretation presentations were prepared using Schlumberger's Saraband synergetic log system. The hole was, for all practical purposes, "straight". The maximum deviation of 1-3/4° occurred at 2182' in the 6" hole. The remainder of the hole was drilled at 1° or less deviation.

Detailed drilling information, in the form of bit records, mud summary, time analysis, and casing and cementing reports, is included in the body of this report.

APPLICATION FOR PERMIT TO DRILL, DEEPEN, OR PLUG BACK Let offer of work DRILL DEEPEN DEEPEN PLUG BACK None T. DRIT AGREEMENT SAME TO THIS WALL TO NOTARY OR CARLE TOOLS TO THIS WALL T. DRIVE TAGE TO THIS WALL T. DRIVE TAGE TO THIS WALL TO NOT THE CARLE TOOLS TO THIS WALL TO NOT THE CARLE TOOLS TO THIS WALL T. DRIV TOOLS TO THE CARLE TO	Form 9-331 C (May 196)		ITED STATES	_	TR RE TEMES Other instruction of Present	dens es	Form approved. Budget Bureau No. 42-R1425.		
APPLICATION FOR PERMIT TO DRILL, DEEPEN, CR PLUG BACK LA THE OF WORLD DETTO OF WELL DETTO OF						ĺ	5. LEANS DESIGNATION AND SERVAL BO.		
APPLICATION FOR PERMIT TO DRILL, DEEPEN PLUG BACK STREET OF WALL STREET STREET STREET WALL STREET STREET STREET WALL STREET		GÉOL	OGICAL SURVE	Y			None		
DAILL G DEEPEN PLUG BACK TO THE ANALYSIS OF THE PROPERTY OF THE ANALYSIS OF TH	A POLICATIO	N FOR PERMIT	TO DRILL D	EEPEN. OF	PLUG B	ACK	G. IV INDIAN, ALLOYIEL OF THE SAME		
DEPPEN PLUG BACK STATE OF STATE STATE OF STATE STATE OF STATE OF STATE D. THEN OF WILL STATE OF STATE STATE OF STATE	L. TIPS OF WORK			-	_	1			
STATE OF STA	٥	AILL 🛣	Deepen []	PLUG BAC	ж U	1. Car addition; also		
Rusky Oil NPR Operations, Inc. South Barrow Mell No. 10. While N		GA3 (54)		SINGLE T	3(111.717)	^{-,} ≇ ☐	B. Park of Leagn Name		
Husky Oil NPR Operations, Inc. JOSEAN OF PRESENCE 3201 C Street, Shite 600, Anchorage, AK 99503 Library of your (Super Section of the All Sections at the April 10, Fills and Post, or Tiscair Library of the April 10, Fills and Sections at the A	2. NAME OF OPERATOR	WELL (A) OTHER		27984 (2.)	2034		Nav 1 Petroleum Reserve		
3. SOUTH BATTON WELL (Expert location clerity and is scentiated with any filts requirements.) 1. THE SAME PORTS, CONTROL (Expert location clerity and is scentiated with any filts requirements.) 1. THE SAME PORTS, CONTROL (Expert location clerity and is scentiated with any filts requirements.) 1. THE SAME PORTS, CASE CE. T.	Husky Oil NP	R Operations, It	ac,				9. WHILE NO.		
SOUTH C Street, Salte 500, ARCHOTAGE, AN 7500 PRINTERS WITH ARCHITICAL CONTROL OF STATE AND CALLED TO STATE OF							South Barrow Well No.		
At Proposed pred, Date 2000 FRL, 1800 FRL, Sec 25, T22N, RITW At Proposed pred, Date Sec. 25, T22N, RITW 12. ORDER OF SHALES SHALES Sec. 25, T22N, RITW 13. ORDER OF SHALES Sec. 25, T22N, RITW 14. DEFECT OR PRESENT 15. SHALES TO MISSISTER SEC. 25, T22N, RITW 15. SHALES TO MISSISTER SEC. 25, T22N, RITW 16. SHALES THE SHALES Sec. 25, T22N, RITW 17. SO CHEEK AMBRICHED TO THIS VALLE SEC. 25, T22N, RITW 18. SHALES THE SHALES NOT SLOWE SHALES NOT SLOWE SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES NOT SHALES NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW 12. ORDER OF SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW NOT SHALES NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW NOT SHALES NOT SHALES NOT SHALES NOT SHALES NOT SHALES NOT SHALES SEC. 25, T22N, RITW NOT SHALES NOT SHAL	3201 C Str	eer, Suite 600,	Anchorage, A	K 99503			i		
2300' FVI., 1800' FVI., Sec 25, T22N, RITW AND POPPOSED AND SAME AND PROBLEMS TO BE OF THE SAME SAME AS A PROPERTY OF A PARTICLE AND PROBLEMS TO A PARTICLE	At surface					}	11. sec. T. 1. N. OS BLE.		
Sec. 25, TZZR, RIPM. Approximately 11.5 miles RSE of Rayrow, M. 23.680.000 15. rootsal tiles RSE allows RSE of Calls tools N/A 25. mortant of Calls tools Roctary Roctary Roctary Roctary FROPOSED CASING AND CEMENTING PROGRAM 26. Mortant of Calls tools Roctary Approximately 12.1 pad = 17'; KB = 31' FROPOSED CASING AND CEMENTING PROGRAM 26. Mortant of Calls tools Roctary Approximately 12.1 pad = 17'; KB = 31' Innuary 15, 1976 26. 20" 13.16 RSO TOOLS ASSE OF ROLLS 26. 27. 13.16 RSO ROCTARY Approximately 11.5 miles RSE of Rayrow, N/A 27. Mortant of Calls tools Roctary 12. Approximately 12.1 pad = 17'; KB = 31' Innuary 15, 1976 ROCTARY Approximately Pad = 17'; KB = 31' Innuary 15, 1976 Salt of ROLLS ASSE OF ROLLS ASSE OF RAYROW, N/A 28. MORTANT OF CALLS TOOLS ROCTARY 17. Approximately 11.5 miles Rock Wiles Tools ROCTARY 18. NO. OF ACCESS AND LIBRARY NOT CALLS ROCTARY 19. Approximately 11.5 miles RSE of Rayrow, N/A 19. Approximately RSM			5. T22N, R17W	•		ļ	THE ROBARIA OF THE		
Approximate is siles and selection from selection from or for earth. Approximately 11 selections of the post of t						ļ	Sec. 25, T22N, R17W		
COCATION TO NARREST TO TABLE TO THE LEGACY TO THE WALL TH	* DISTANCE IN MILE	AND DIRECTION FROM N	ELECT TOWN OF 1987	OFFICE.	••				
CONTROL TO MARKET THE COLOR OF THE COLOR OF THE CASE O	Approximatel	<u> 11,5 miles ESI</u>	R of Barrow,	AK	e me file and	17 24 -	North Slope Borough, Al		
13. John to bearwest offic unit line. If any: N/A Detrines your temporate beautypest to bear the proof of the proposal party to be properly the property of the proposal party to be properly to be prop	COCATION TO NEAR	ROT				10 17	ALEXA TRANSPORT		
TO SCHEET WELL DATESTACE DESCRIPE CHAPMEN CONFIDENCE AT THE MARKET THE PROPOSED CASING AND CEMENTING FROGRAM SITE OF HOLE STREE LAND WINDSTORM AND CEMENTING FROGRAM SITE OF HOLE STREET OF CASING WINDSTORM AND CEMENTING FROGRAM SITE OF HOLE STREET OF CASING WINDSTORM AND CEMENTING PROGRAM SITE OF HOLE STREET OF CASING WINDSTORM AND CEMENTING PROGRAM SITE OF HOLE STREET OF CASING WINDSTORM AND CEMENTING PROGRAM SITE OF HOLE STREET OF CASING AND CEMENTING PROGRAM SITE OF HOLE STREET OF CASING AND CEMENT OF CEMENT 26" 20" 133\$ 80' TO SURFACE 2500 ax This form is filed for information only. Please refer to letter from the Director, Nave Petroleum and Oil Shale Reserves, Serial \$ 394, August 27, 1968. PROCEED OF TAXIONAL SHANAGEMENT STRUCKE AND	(Also to nearwet t	iring whit line, if any i					AT GR CARLE TOOLS		
The street describe from the DF. AT. OR, etc.) SITE OF MOLE STREET OF STREET S	TO NEVERSE WELL	. DATELIJO, COMPL ETCO .			-	! _			
SIZE OF MOLE SIZE OF MOLE SIZE OF CARDO WEIGHT PERFORM ASSES OF MOLE SIZE OF CARDO WEIGHT PERFORM 26" 20" 1318 80! TO SURFACE \$2500 SX 8 1/2" 7" 328 2500' TO SURFACE \$2500 SX This form is filed for information only. Please refer to letter from the Director, Nave Petroleum and 011 Shale Reserves, Serial \$394, August 27, 1968. RECEIVED DEPUT MINERALS MANAGER ONSHORE HELD OFFERATIONS IAN 1 8 1983 MINERALS MANAGEMENT STRUCE SITE OF ANCHORAGE ALASKA 9720 SITE OF ANCHORAGE OF PROPOSED IN 16 OFFICE PROPOSED IN 16 OFFICE OFFICE PROPOSED IN 16 OFFICE OFFICE OFFICE PROPOSED IN 16 OFFICE OFFICE OFFICE PROPOSED IN 16 OFFICE OFFICE OFFICE OFFICE OFFICE PROPOSED IN 16 OFFICE OFFI OFFI OFFI OFFI OFFI OFFI OFFI OFF							22. AMPROX, DATE WOME WILL START		
SIZE OF MOLE SIZE OF MOLE SIZE OF CALLO WEIGHT PERFORM SETTING DEPTH QUARTITY OF CEMENT 26" 20" 1316 80' TO SURFACE 2500 SX 8 1/2" 7" 328 1200' TO SURFACE 2500 SX 8 1/2" 7" 328 2500' TO SURFACE 2500 SX This form is filed for information only. Please refer to letter from the Director, Nave Petroleum and 011 Shale Reserves, Serial \$ 394, August 27, 1968. RECEIVED DEPUT MINERALS MANAGER ONSHORE HELD OFFERATIONS IAN 1 8 1983 MINERALS MANAGEMENT STRUCE AND STRUCK HELD OFFERATIONS IX ABOVE SPACE DESCRISE PROPOSED PROMEAN: If proposed is to deepee or plog back give data on present productive mode and proposed are productly provided to to drill or deepee directionally, give pertisent data on submittace locations and measured and true vertical depths. Give blown interests of Product of State office uses the state of Product of Product of State office uses the state of Product of Product of Product of State office uses that The State office uses the state of the State of the State office uses the State of the Sta	Ground = 12 t	: Pad = 17': 1	KB = 31'				January 15, 1976		
26" 20" 1336 80! To surface 1200' To surface ± 2500 sx 1200' To surface ± 2500 sx This form is filed for information only. Please refer to letter from the Director, Nave Petroleum and 011 Shale Reserves, Serial # 394, August 27, 1968. RECEIVED DEMTH HANKALS MANAGER ONSHORE HELD OPERATIONS LAN 1 8 1983 MINIERALS MANAGEMENT STRUCE 4111 V. GIFF AVE. 5.1.7 12 ANCHORAGE. ALASKA VIII IN ABOVE SPACE DESCRISE PROPAGES PROPAGES PROPAGES PROPAGES IN to deeped or plog back give data on pre-meet productive mode and proposed are produced to to drill or deeped allesctionally, give pertinent data on submurface locations and measured and true vertical depute. Give blower propages by Propages by Propages by Propages by Propages by Propages of Propages of Propages by Propages by Propages of				G TALD CREZURA.	THE PROCES	770			
14 3/4" 8 1/2" 7" 324 2500' To surface ± 2500 sx This form is filed for information only. Please refer to letter from the Director, Nava Petroleum and Oil Shale Reserves, Serial # 394, August 27, 1968. EXCEIVED DEFUTY MINERALS MANAGER ONSHORE HELD OFFRATIONS IAN 1 8 1983 MINERALS MANAGEMENT SERVICE 411 W. 4th AVE., 50-76 78 ANCHORAGE ALASKA 9/10 IX ABOVE SPACE DESCRISE PROPERTY COMMEAN: If proposal is to deepen or plog back, give data on present productive some and proposed are productive. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blows (The Apple of Proposal or State office use) Peter of the Proposal or State office use)	SIZE OF BOLD	HIZE UP CARANO	WEIGHT 112 FO	07	NG DETER		QUANTITY OF CEMENT		
This form is filed for information only. Please refer to letter from the Director, Nava Petroleum and Oil Shale Reserves, Serial # 394, August 27, 1968. RECEIVED DEPUTY MINERALS MANAGER CONSHORE HELD OPERATIONS IAN 1 8 1983 MINERALS MANAGEMENT SERVICE #11 VV. 4th AVE. 50-76 75 ANCHORAGE ALASKA 99701 IX ABOVE SPACE DESCRIBE PROPRIETO PROPRIETO PROPRIETO IN CONTROL OF PROPRIETO PRO	26"	20"	133#	80.		To	surface		
This form is filed for information only. Please refer to letter from the Director, Nave Petroleum and Oil Shale Reserves, Serial # 394, August 27, 1968. RECEIVED DEPUTY MINERALS MANAGER ONSHORE HELD OPERATIONS JAN 18 1983 MINERALS MANAGEMENT SERVICE #11 NV. 4th AVE. 50.76 75 ANCHORAGE. ALASKA 9779 IN ABOVE SPACE DESCRISS PROPRIES PROPRIES PROPRIES PROPRIES IS to deepen or plog back, give data on present productive mage and proposed new productions If proposed is to deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blows (refresher programs. If any. THE DIVINE DIRECTOR Proposed by Frderal or State after use) PERMIT NO. PAGE 1/18/83			51#	1200	_	To	surface + 2500 sx		
Petroleum and 011 Shale Reserves, Serial # 394, August 27, 1968. RECEIVED DEPUTY MINERALS MANAGER ONSHORE FIELD OPERATIONS IAN 1 8 1983 MINERALS MANAGEMENT SERVICE 411 V. 47th AVE., 50-75 24 ANCHORAGE ALASKA 92221 IN ABOVE SPACE DESCRIES ENGINEER ENGINEERALS: If proposal is to deepen or play back, give data on present productive mage and proposed are production. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blower recorder programs. If any. PREMIT VO. PREMI	8 1/2"	7''	32#	2500		To	surface I 600 sx		
ANCHORAGE ALASKA PICE IN ABOVE SPACE DESCRISE PROPOSED CHARACE: If proposal is to deepen or plug back, give data on present productive some and proposed new productions. If proposal is to drill or deepen directionally, give pertinent data on subsurface locations and measured and true vertical depths. Give blown nioned A. M. M. Cauthy These Drilling Engineer hate 12-13-76 [Thurspace by Federal or State office use] NEBULT VO. pted for the Mills Adams. THE DISTANCE DATE THE DISTANCE DATE DITE 1/18/83							RECEIVED DEPUTY MINERALS MANAGER ONSHORE FIELD OPERATIONS .IAN 18 1983 MINERALS MANAGEMENT SERVICE		
record: Mille 1. Hause The List Supervisor 118/83	i Thurspace by E	to drill or deepen directs any. M. M. Ca		data on subsurf	ing Engi	ad measures	uctive made and proposed sew productive		
THIS AMENDS ORIGINAL DATED DECEMBER 13, 1976. AMENDED 1/14/83	pred for the record:	UN.11 VAL	aa aa	ラタンメージ			1.0/00		

Perm 10 - 401

MEV. (-)	1 - 71	STATE OF	ALASK	(A		
	OIL &	ND GAS CONSER	VATION	COMMITTEE		1
						8. LEASE DIREGNATION AND SERIAL NO
	PERM	IT TO DRILL	OR I	DEEPEN		
L 7278 OF TORE				1		None F. IF INDIAN, ALLOTTER OR TRUSE NAME
. TTPE OF WOLL	DRILL 🖾	DEE	PEN [J		
on.	₩L 🖼			10#8 T 10	TITION.	NORE
MAKE OF OPER		<u> </u>		20#1 11 10	·	
Husky Oil	NPR Operati	ons, Inc.				Naval Petroleum Reserve N
ADDRESS OF OF						South Restaur Hall No. 1/
3201 C S	street, Suit	e 600, Anchor	age,	AK 99503		South Barrow Well No. 14
LOCATION OF W		·		-		Fact Barrow Cas Field
	. 1800 * FNT.	Sec. 25, T22	N. R1	7 u		Fact Barrow Gas Field 1: SEC. T R M -BOTTOM HOLEOMETIVE
At proposed pro-	d. 2900	V44. 15, 121		, ,		HOLE OBJECTIVE
Same as ab						Sec. 25, T22N, R17W
. DISTANCE IN M	CLES AND DIRECT	ON FROM NEAREST T	UWN OR I	OST OFFICE		18L
Approximat	ely II.5 mi	les ESE of Ba	ITTOW.	AK		North Slope Borough
BOND INFORMA	ATION				-	
TYPE	Surety and/or	на Мопа				Astronys
DISTANCE PROS	M PROPOSED*		1	NO. OF ACRES IN LEAS	7	IT NO ACRES ASSIGNED TO THIS WELL
PROPERTY OF	LEASE LINE PT.	N/A	- 1	23,680,000	-	N/A
DISTANCE FRO	M PROPOSED LOCA	MON-		S PROPOSED DEPTH	<u> </u>	P ROTARY OR CARLE TOOLS
OR APPLIED F	POR. FT		ļ	25221		_
4750' 2500'						Rotary
					i	12 APPROX. DATE WORK WILL START
Ground - 1	z ; rad *	17'; KB = 31		NO CEMENTING PROGRA	<u>. </u>	January 15, 1977
SIZZ OF MOLE	SIZE OF CASING		GRADE			dugasity of domain
26"	20"	133#	K-55	801	To surface	
	10 3/4"	51#	N-80	1200 '		rface †2500 sx
14 3/4"						
14 3/4" 8 1/2"	7"	32#	1 N-80	1 2500°	1 70 00	
14 3/4" 8 1/2"		32#	N-80	25001	To su	rface + 600 sx

This form is filed for information only. Please refer to letter from the Director, Naval Petroleum and Oil Shale Reserves, Serial #394, August 27, 1968.

PECEIVED
DEPUTY MINERALS MANAGER
ONSHORE FIELD OPERATIONS

JAN 1 B 1983

vertical depths. Give biament prev	-Ster program.	MINITALS MANAGEMENT SERVICE Optional is to despite grow data on proposit productive tone and Proposition SULTE 2A Arrangement data on substitute localishs and management and Proposition Co. ACC. SULTE 2A ARRANGEMENT SERVICE ACC. SULTE 2A ARRANGEMENT SERVICE ACC. SULTE 2A ARRANGEMENT SERVICE ACC. SULTE 2A ACC.
SIGNED TO MINE C	1 11.	DATE 12-13-76 TITLE Drilling Engineer
This space for State office uses	CONDITIONS	OF APPROVAL, IF ANY:
SAMPLES AND CORE CHIPS REQUISED	MUD LOG	OTHER REQUIREMENTS:
O YOU O YOU	C YES C NO	
DIRECTIONAL SURVEY REQUIRED		A.P.I. MINGRICAL CODE
G 1755 G MO		50-023-20009
PERMIT NO.		APPROVAL DATE
APPROVED BY	"See Instru	TITLE PATE

This amends original signed December 13, 1976 Amended 1/14/83

AMENDED Form 9-331 Form Approved Dec 1973 Budget Burrau Nr. 62-R1624 UNITED STATES S. LEASE DEPARTMENT OF THE INTERIOR N/A 6. IF INDIAN, ALLOTTEE OR TRIBE NAME GEOLOGICAL SURVEY N/A 7. UNIT AGREEMENT NAME SUNDRY NOTICES AND REPORTS ON WELLS Naval Petroleum Reserve No. 4 (Oo not use this form for proposals to drift or to deepen or plug back to a difference provide. Use Form \$-331-C for such proposals.) B. FARM OR LEASE NAME Naval Petroleum Reserve No. 4 Weil 🔲 other 9. WELL NO. 2 NAME OF OPERATOR South Barrow Well No. 14 Rusky Oil NPR Operations, Inc. 10. FIELD OR WILDCAT NAME 3. ACCRESS OF OPERATOR East Barrow Gas Field 3201 C Street. Suite 600. Anchorage 11. SEC., T., R., M., OR BLK. AND SURVEY OR 4. LOCATION OF WELL (REPORT LOCATION CLEARLY, See space 17 AREA Sec. 25, T22N, R17W baiow.) AT SURFACE: 2300' FWL, 1800' FNL 12. COUNTY OR PARISH 13 STATE AT TOP PROD. INTERVAL: As above North Slope Borough <u>Alaska</u> AT TOTAL DEPTH: As above 14. AP! NO. 15. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, 50-023-20009 REPORT, OR OTHER DATA 15. ELEVATIONS (SHOW DF . KOR AND WO) Ground: 12'; Pad: 17'; KB. 31' REQUEST FOR APPROVAL TO: SUBSEQUENT REPORT OF: TEST WATER SHUT-OFF FRACTURE TREAT SHOOT OR ACIDIZE REPAIR WELL GIOTE: Report resolts of multiple or PULL OR ALTER CASING change on Form 9-330. MULTIPLE COMPLETE CHANGE ZONES ABANDON* (ather) 17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)* Changes have been made in the So. Barrow No. 14 Well Program. The new property of the Changes have been made in the So. Barrow No. 14 Well Program. The new property of the Changes have been made in the So. Barrow No. 14 Well Program. shown below: ONSHORE FIELD OPERATIONS 10 3/4" casing @ 1000' in 13 1/2" hole cemented to surface. 7" casing @ + 1900' in 8 1/2" hole cemented to surface. JAN 1 8 1983 5 1/2" slotted liner at total depth in 6" hole if applicable. MINERALS MANAGEMENT STRVICE 400 W. Gellavitussi. ANCHORAGE, ALASKA 99501 This form is filed for information only. Please refer to letter from one Director, Naval Petroleum and Oil Shale Reserves, Serial #394, August 27. 1968 Subsurface Safety Valvet Manu. and Type _ ... ai et @ __ 13. I heraby cartily that the foregoing is true and correct SIGNED nne <u>Prilling Manager pare</u>

*San Instructions on Revenue Side

This space for Federal or State orice usel

OIL AND OAS SUPERVIEOR

Amended 1/14/83

This amends original signed February 4, 1977

Accepted for

the record: William

CONDITIONS OF APPROVAL

Form 19-403

Supmit "Intentions" in Triplicate

AMENDED

REV. 1-10-73	A "Subsequent Reports" in Decircate	ALENDED
	STATE OF ALASKA	3. API NUMERICAL CODE
0	IL AND GAS CONSERVATION COMMITTEE	50-023-20009
		& LEASE DESIGNATION AND SERIAL NO.
SUNI	DRY NOTICES AND REPORTS ON WELLS	
3) MU	On not use this form for proposals to drill or to deepen "APPLICATION FOR PERMIT—" for such proposals.)	None
ال ال	45 []	7, IF INGIAN, ALLOTTEE OR TRIBE NAME
	ELL LX OTHER	None
L HAME OF OPERAT	_	
Husky Cil NPR	Operations, Inc.	Naval Petroleum Reserve No. 4
• ·	et, Suite 600, Anchorage, AK 99503	South Barrow Well No. 14
LOCATION OF WE		10. FIELD AND POOL, OR WILDCAT
At surface		East Barrow Gas Field
! 10	and the same of many nature	11. SEC., T., R., M., (BOTTOM HOLE OBJECTIVE)
2300' FWL, 18	000' FNL, Sec. 25, T22N, R17W	
		Sec. 25, T22N, R17W
13. ELEVATIONS (SE	how whether DF, RT, GR, HC)	·
Ground = 121:	Pad = 17': KB = 31'	N/A
14. (Check Appropriate Box To Indicate Nature of Notice, R	eport, or Other Data
	NOTICE OF INTENTION TO:	UBSEQUENT REPORT OF:
TEST WATER SHE	···	
FRACTURE THEA		
SHOOT OR ACIDI	CHANGE PLANS (Other)	
(Other)	——————————————————————————————————————	of results of multiple completion on West
		Recompletion Report and Log form.)
15. DESCRIBE PROP	OSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, a	ng give pertinent dates, including estimated date of
7" casing @ 1	ng 0 ± 1000' in 13 1/2" hole cemented to surfs [1900' in 8 1/2" hole cemented to surface. Ed liner at total depth in 6" hole if applicab	
	filed for information only. Please refer to sum and Oil Shale Reserves, Serial #394, Augus	
		DEPUTY MINERALS MANAGER ONSHORE FIELD OPERATIONS
		JAN 1 8 1983
		MINERALS MANAGEMENT SERVICE ATT W 47H AVE., SUITS 2A ANCHORAGE, ALASKA 99521
16. I hereby cerement	that the faregoing is true and correct A M OAA D=4114 - Ma	2 4 27
SIGNED	At a office use)	DATE 2-4-17
APPROVED BY	FAPPROVAL, IF ANY:	OATE
	This amends original signed February 4,	1977 Amended 1/14/83

See Instructions On Reverse Side

	ATENDED
Form 5-331 Dec. 1973	Form Approved, Sudget Bureau X19, 42–71122
UNITED STATES	5. LEASE
DEPARTMENT OF THE INTERIOR	N/A
GEOLOGICAL SURVEY	6. IF INDIAN, ALLOYTEE OR TRIBE MAME
GEOEOGICAE 30//4C1	N/A
SUNDRY NOTICES AND REPORTS ON WELLS	7. UNIT AGREEMENT NAME
(Do not one this take (or bisbosers to drug of to debau at Sind pack to a different	l .
reservoir, Use Form 9-331-C for such proposals.)	8. FARM OR LEASE NA
1, oil gas	Naval Petroleum Reserve No. 4
well well ather	9. WELL NO.
2. NAME OF OPERATOR	South Barrow Well No. 14
Husky 011 NFR Operations, Inc.	10. FIELD OR WILDCAT NAME
3. ADDRESS OF OPERATOR	EastBarrow Gas [[eld
3201 C Street, Anchorage, AK 99503	11. SEC., T., R., MOR BLK. AND SURVEY OR
4. LOCATION OF WELL (REPORT LOCATION CLEARLY. See space 17	AREA
below.)	Sec 25, T22N, R17W
AT SURFACE: 2300' FWL, 1800' FNL AT TOP PROD. INTERVAL:	12 COUNTY OR PARISH 13 STATE
AT TOTAL DEPTH:	North Slope Roreligh Alasks
	14. API NO.
16. CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA	50-023-0009
ROTORI, ON OTHER DATA	15. ELEVATIONS (SHOW DF_KD3. AND WO)
REQUEST FOR APPROVAL TO: SUBSEQUENT REPORT OF:	GL - 12'; Pad -17'; KB - 31'
REPAIR WELL PULL OR ALTER C.SING CHANGE ZONES ABANDON* (other) Progress report.	(NOTE: Report results of multiple completion or zone change on Ferm 9—130.)
17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state	e all partinent details, and give pertinent dates
including estimated date of starting any proposed work. If well is o	licectionally drilled, give subsurface incallably
measured and true vertical depths for all markers and zones pertina	nt to this work.) DEFUTY MINERALS MANAG ONSHORE FIELD OPERATION
1/27/77: Nipple up 16" BOP.	
1/28/77: Spudded well at 1:30 a.m. w/13½" bit.	JAN 1 8 1983
1/29-31/77: Drilled to 1048'. Ran DIL, BHC/Sonic 2/1/77: Set 10 3/4" 51# k-55 casing at 1042'.	
2/2/77: Set 10 3/4 31# K-33 casing at 1042'. 2/2/77: Cemented w/760 sx Permafrost IT. Full	1 returns to surface. MINISTRAIS MANAGEMENT SER
2/2/77: Cemented w/750 sx Permafrost II. Ful. 2/3/77: Nippled up BOP and drilled out.	A COMPORAGE, ALASKA 9953
2/4-5/77: Drilled to 1950'.	TO STAGE, ALASKA 9953
2/5/77: Ran DIL, BHC/Sonic, FDC/CNL, HRD, Side	ewall Cores.
2/6-7/77: Ran 7" 32# N-80 to 1947'. Cemented to	surface w/760 sx Permairmet
II + 125 sx Class "G" with 27 CaCl	· Full returns.
2/8/77: Tested BOP and casing and drilled out	
2/9/77: Ran CBL/VDL/GR/CCL in 7".	
2/10-11/77: Drilled to 2100'.	
See attached for continuation. Subsurface Safety Valve: Manu. and Type	Set @ Ft.
·	
18. I hereby certify that the foregoing is true and correct	
SIGNED TY Mead no Drilling Many	1ger DATE 3 - 16 - 17
Accepted for GNs space for Federal or State of	hos uset
the record : Will Server TITLOTI AND CASE CONDITIONS OF APPROVAL IF ANY	PERVISOR 1/18/83
This amends original signed March 1	.6, 1977 Amended 1/14/83

*See Instructions on Reverse Side

Sundry Notices and Reports on Wells Naval Petroleum Reserva No. 4 South Barrow Well No. 14 March 16, 1977

17. (Continued)

2/12/77:	Ran DST No. 1 1890'-2100'. Opened tool w/mud to surface in six
	minutes. Flowed at 2.4 mm CF on 3/8" choke w/700#.
2/13/77:	Drilled shead to 2200'.
2/14/77:	Drilled shead to 2257'. Lost circulation.
2/18/77:	Sat cement plug at 2257' to 2114' w/25 sacks "G", 2% CAC1.
2/19/77:	Drilled cement to 2128'. Logged with DIL, BHC Sonic, FDC/CNL, MLL,
	HRD, shot 10 sidewall cores, recovered 10.
2/20/77:	Set cement plug at 2191' w/15 sacks Class "G", 2% CAC1.
2/21/77:	Drilled out cement to 2130'.
2/22/77:	Ran 54" slotted liner at 2125', hanger at 1826', packer at 1822'.
2/23-	Brought well in and ran four point test and 72 hour buildup. Killed
3/1/77:	well with 10.7# calcium chloride water. Set retainer at 1772'.
	Landed tubing at 1754'. Rig released.

RECEIVED
DEPUTY MINERALS MANAGES
ONSHORE FIELD OPERATIONS

JAN 1 8 1983

MINERALS MANAGEMENT SERVICE 411 W. KTH AVE., SUITE 2A ANCHORAGE, ALASKA 99501

REV. 1-10-73	& "Suber				
	STATE OF ALASKA		API NUMERICAL CODE		
	OIL AND GAS CONSERVATION COMMI	N/A			
	OIL AND GAS CONSERVATION COMMI	1166	6. LEASE DESIGNATION AND SERIAL NO.		
s	UNDRY NOTICES AND REPORTS OF	dee0e0			
	Use "APPLICATION FOR PERMIT—" for such p	OBOSHL)	N/A 7. IF INDIAN, ALLOTTEE OR TRIBE NAME		
L. OIL	GAS WELL X OTHER		N/A e. UNIT, FARM OR LEASE NAME		
Z NAME OF OP					
	NPR Operations, Inc.		Naval Petroleum Reserve No. 4		
L ADDRESS OF					
3201 C S	treet, Anchorage, AK 99503		South Barrow Well No. 14		
LOCATION O			1		
At surface	2300' FWL, 1800' FNL		East Barrow Gas Field 11. SEC., T., R., M., (SOTTOM HOLE OBJECTIVE)		
			II. SEC. II. K., M., (SO) CON POLE OF SEC. IV.		
			Sec 25. T22N. R17W		
	S (Show whether OF, RT, GA, etc.)		l .		
GL - 12';	Pad - 17'; KB - 31'		N/A		
14.	Check Appropriate Box To Indicat	Nature of Notice, Re	port, or Other Data		
	NOTICE OF INTENTION TO:		ESEQUENT REPORT OF:		
TEST WATER	SHUT-OFF PULL OR ALTER CASING	WATER SHUT-OF	P REPAIRING WELL		
FRACTURE?	· · · · · · · · · · · · · · · · · · ·	PRACTURE TRE			
SHOOT OR A	··-·	SHOOTING OR A	CIDIZING ABANDONMENT*		
REPAIR WEL	**************************************	(Other)			
(Other)		(NOTE: Report	results of multiple completion on Well		
	PROPOSED OR COMPLETED OPERATIONS (CM		Recompletion Report and Log form.)		
15. DESCRIBE	PROPOSED OR COMPLETED OPERATIONS (CHA				
starting any	proposed work.	ly state all pertinent details, an			
	proposed work.	ily state dil pertinent detalla, en	DEPUTY MINERALS MANAGER ONSHORE FIELD OPERATIONS		
1/27/77:	Nipple up 16" BOP.		DEPUTY MINERALS MANAGER		
1/27/77: 1/28/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l.	34" bit.	DEPUTY MINERALS MANAGER ONSHORE FIELD OPERATIONS		
1/27/77: 1/28/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l:Drilled to 1048'. Ran DIL, B	34° bit. RC/Sonic.	DEPUTY MINERALS MANAGER		
1/27/77: 1/28/77: 1/29-31/77 2/1/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l: Drilled to 1048'. Ran DIL, B Set 10 3/4" 51# k-55 casing a	3½" bit. HC/Sonic. t 1042'.	DEPUTY MINERALS MANAGER ONSHORE FIELD OPERATIONS JAN 1 8 1983		
1/27/77: 1/28/77: 1/29-31/77 2/1/77: 2/2/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l:Drilled to 1048'. Ran DIL, B Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost	34" bit. HC/Sonic. t 1042'. II. Full returns t	DEPUTY MINISTALS MANAGER ONSHORE FISED OPERATIONS JAN 18 1983 DEPUTY MINISTALS MANAGER MANAGER ON STATE OF THE PROPERTY OF T		
1/27/77: 1/28/77: 1/29-31/77 2/1/77: 2/2/77: 2/3/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l:Drilled to 1048'. Ran DIL, B Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou	34" bit. HC/Sonic. t 1042'. II. Full returns t	DEPUTY MINERALS MANAGER ONSHORE FIELD OPERATIONS JAN 1 8 1983		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l:Drilled to 1048'. Ran DIL, B Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'.	34" bit. HC/Sonic. t 1042'. II. Full returns t	DEPUTY MINISTALIS MANAGER ONSHORE FIELD OPERATIONS JAN 1 8 1983 SO SUFFACE. MINISTALISM STATE OF THE PROPERTY OF THE PROPERT		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/5/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l :Drilled to 1048'. Ran DIL, B Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL,	34" bit. HC/Sonic. t 1042'. II. Full returns t	DEPUTY MINISTALIS MANAGER ONSHORE FISED OPERATIONS JAN 18 1983 DEPUTY MINISTALIS MANAGER MANAGER ON THE CENTRE OF THE CENTR OF THE CENTRE OF THE CENTR OF THE CENTRE OF THE CENTR OF THE CENTRE OF T		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l :Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Cem	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewa	DEPUTY MINISTALIS MANAGER ONSHORE FISED OPERATIONS JAN 18 1983 DEPUTY MINISTALIS MANAGER MANAGER ON THE CENTRE OF THE CENTR OF THE CENTRE OF THE CENTR OF THE CENTRE OF THE CENTR OF THE CENTRE OF T		
1/27/77: 1/28/77: 1/29-31/77 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/5/77: 2/6-7/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l :Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewa mented to surface to aCl ₂ .	DEPUTY MINICEALS MANAGER CONSHORE FISED OPERATIONS JAN 1 8 1983 TO SUTFACE. MINICEALS MANAGEMENT ST. CE. MINICEALS MANAGER CONSTRUCTION OF CONSTRUCTION		
1/27/77: 1/28/77: 1/29-31/77 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/5/77: 2/6-7/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l :Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewa mented to surface to aCl ₂ .	DEPUTY MINICEALS MANAGER CONSHORE FISED OPERATIONS JAN 1 8 1983 TO SUTFACE. MINICEALS MANAGEMENT ST. CE. MINICEALS MANAGER CONSTRUCTION OF CONSTRUCTION		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/9/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l :Drilled to 1048'. Ran DIL, B Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 2% Co Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7".	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewa mented to surface to aCl ₂ .	DEPUTY MINICEALS MANAGER CONSHORE FISED OPERATIONS JAN 1 8 1983 TO SUTFACE. MINICEALS MANAGEMENT ST. CE. MINICEALS MANAGER CONSTRUCTION OF CONSTRUCTION		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/9/77: 2/10-11/77	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l :Drilled to 1048'. Ran DIL, B Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 2% Co Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7".	34" bit. RC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewa mented to surface to 1012. 11ed out.	DEPUTY MINISTALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINISTALS MANAGEMENT ST. CE AND THE STATE OF THE STATE O		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/9/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O	34" bit. HC/Sonic. t 1042'. II. Full returns to. HRD, shot 11 sidewarented to surface to account to the contract of the contra	DEPUTY MINISTALIS MANAGER ONSHORE FISED OPERATIONS JAN 18 1983 SO SUFface. MINISTALIS MANAGEMENT STEEL OF STE		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/9/77: 2/10-11/77: 2/12/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, B Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 27 Ce Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8"	34" bit. HC/Sonic. t 1042'. II. Full returns to. HRD, shot 11 sidewarented to surface to account to the contract of the contra	DEPUTY MINISTALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINISTALS MANAGEMENT ST. CE AND THE STATE OF THE STATE O		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/9/77: 2/10-11/77: 2/13/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, B Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled shead to 2200'.	HT' bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewa mented to surface to aCl ₂ . lied out. pened tool w/mud to choke w/700f.	DEPUTY MINISTALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINISTALS MANAGEMENT ST. CE AND THE STATE OF THE STATE O		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/6-7/77: 2/9/77: 2/10-11/77: 2/13/77: 2/13/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, B Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled shead to 2200'.	34" bit. HC/Sonic. t 1042'. II. Full returns t t. HRD, shot 11 sidewa mented to surface t aCl ₂ . lied out. pened tool w/mud to choke w/700#.	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINERALS MANAGEMENT OF THE PROPERTY OF THE PROPER		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/6-7/77: 2/9/77: 2/10-11/77: 2/13/77: 2/14/77: 2/18/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, B Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled shead to 2200'. Drilled shead to 2257'. Lost Set cement plug at 2257' to 2	34" bit. HC/Sonic. t 1042'. II. Full returns t t. HRD, shot 11 sidewa mented to surface t aCl ₂ . lied out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G"	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINERALS MANAGER FOR CE AND 18 1983 TO SUTFACE. MINERALS MANAGER FOR CE AND 18 1983 TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGE		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/5/77: 2/6-7/77: 2/8/77: 2/9/77: 2/10-11/77: 2/13/77: 2/13/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, B Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Co Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled shead to 2200'. Drilled ahead to 2257'. Lost Set cement plug at 2257' to 2 Drilled cement to 2128'. Log	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewared to surface to aCl ₂ . lied out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC:	DEPUTY MINISTALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINISTALS MANAGEMENT OF THE PROPERTY OF THE PROP		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/10-11/77: 2/12/77: 2/13/77: 2/14/77: 2/18/77: 2/19/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, B Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled shead to 2200'. Drilled shead to 2257'. Lost Set cement plug at 2257' to 2	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewared to surface to aCl ₂ . lied out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC:	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINERALS MANAGER FOR CE AND 18 1983 TO SUTFACE. MINERALS MANAGER FOR CE AND 18 1983 TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGE		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/5/77: 2/6-7/77: 2/9/77: 2/10-11/77: 2/12/77: 2/13/77: 2/14/77: 2/18/77: 2/18/77: 2/19/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, B Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled shead to 2200'. Drilled ahead to 2257'. Lost Set cement plug at 2257' to 2 Drilled cement to 2128'. Log HRD, shot 10 sidewall cores,	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewared to surface to aCl ₂ . lied out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC:	DEPUTY MINISTALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINISTALS MANAGEMENT OF THE PROPERTY OF THE PROP		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/5/77: 2/6-7/77: 2/8/77: 2/10-11/77: 2/12/77: 2/13/77: 2/14/77: 2/18/77: 2/18/77: 2/19/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". :Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled ahead to 2200'. Drilled ahead to 2257' to st Set cement plug at 2257' to st Set cement plug at 2257'. Lost Set cement to 2128'. Log HRD, shot 10 sidewall cores, sed for continuation.	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sideware to surface to aCl2. 11ed out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC : recovered 10.	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUFFACE. MINERALS MANAGERETY STYLE AND SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES.		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/6-7/77: 2/9/77: 2/10-11/77: 2/12/77: 2/13/77: 2/14/77: 2/18/77: 2/18/77: 2/19/77:	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l :Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". :Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled ahead to 2250'. Drilled ahead to 2257'. Lost Set cement plug at 2257' to 5 Drilled cement to 2128'. Log HRD, shot 10 sidewall cores, sed for continuation.	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sidewared to surface to aCl ₂ . lied out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC:	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUTFACE. MINERALS MANAGER FOR CE AND 18 1983 TO SUTFACE. MINERALS MANAGER FOR CE AND 18 1983 TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGER MINERALS MANAGER TO SUTFACE. MINERALS MANAGE		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/9/77: 2/10-11/77: 2/12/77: 2/14/77: 2/18/77: 2/18/77: 2/18/77: 2/18/77: See attack 16 I hareby to	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled shead to 2200'. Drilled shead to 2257'. Lost Set cement plug at 2257' to 2 Drilled cement to 2128'. Log HRD, shot 10 sidewall cores, sed for continuation.	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sideware to surface to aCl2. 11ed out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC : recovered 10.	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUFFACE. MINERALS MANAGERETY STYLE AND SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES.		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/2/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/6-7/77: 2/9/77: 2/10-11/77: 2/12/77: 2/13/77: 2/14/77: 2/18/77: 2/18/77: 2/19/77: See attack	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51% k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32% N-80 to 1947'. Ce + 125 sx Class "G" with 2% Ca Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". :Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled ahead to 2200'. Drilled ahead to 2257' to st Set cement plug at 2257' to st Set cement plug at 2257'. Lost Set cement to 2128'. Log HRD, shot 10 sidewall cores, sed for continuation.	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sideware to surface to aCl2. 11ed out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC : recovered 10.	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUFFACE. MINERALS MANAGERETY STYLE AND SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES.		
1/27/77: 1/28/77: 1/29-31/77: 2/1/77: 2/3/77: 2/4-5/77: 2/6-7/77: 2/8/77: 2/9/77: 2/10-11/77: 2/12/77: 2/14/77: 2/18/77: 2/18/77: 2/18/77: 2/18/77: See attack 16 I hareby to	Nipple up 16" BOP. Spudded well at 1:30 a.m. w/l Drilled to 1048'. Ran DIL, Bi Set 10 3/4" 51# k-55 casing a Cemented w/760 sx Permafrost Nippled up BOP and drilled ou Drilled to 1950'. Ran DIL, BHC/Sonic, FDC/CNL, Ran 7" 32# N-80 to 1947'. Ce + 125 sx Class "G" with 2% Co Tested BOP and casing and dri Ran CBL/VDL/GR/CCL in 7". Drilled to 2100'. Ran DST No. 1, 1890-2100'. O Flowed at 2.4 mm CF on 3/8" Drilled ahead to 2200'. Drilled ahead to 2257'. Lost Set cement plug at 2257' to 2 Drilled cement to 2128'. Log HRD, shot 10 sidewall cores, set for continuation.	34" bit. HC/Sonic. t 1042'. II. Full returns to t. HRD, shot 11 sideware to surface to aCl2. 11ed out. pened tool w/mud to choke w/700#. circulation. 114' w/25 sacks "G' ged with DIL, BHC : recovered 10.	DEPUTY MINERALS MANAGER CONSHORE FISED OPERATIONS JAN 18 1983 TO SUFFACE. MINERALS MANAGERETY STYLE AND SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES. TO SUFFACE IN SIX MINUTES.		

This amends original dated March 16, 1977.

Amended 1/14/83 See Instructions On Reverse Side

Sundry Notices and Reports on Wells Naval Petroleum Reserve No. 4 South Barrow Well No. 14 March 16, 1977

2/20/77: Set cement plug at 2191' w/15 sacks Class "G", 2% CACL.

2/21/77: Drilled out cement to 2130'.

2/21/7: Ran 54" slotted liner at 2125', hanger at 1826', packer at 1822'.
2/23- Brought well in and ran four point test and 72 hour buildup. Killed
3/1/7: well with 10.7# calcium chloride water. Set retainer at 1772'.

Landed tubing at 1754'. Rig released.

CEVIEDER

TOANAM SEARINIM YTUGED

TO STORE SEARCH S

JAN 1 8 1983

MINERALS MANAGEMENT SERVICE 411 W 4TH AVE., SUITE 2A ANCHORAGE, ALASKA PROI

Amended 1/14/83

Pages 8-226 (Rev. 1-48)		LIKI	TEN	STATE		SUE		DUPLIC.	LTE.	ı	Form a	ppreved.	
	DEPAR					TERIC	R	struc	therin-			Beresu No. 42-R368.4.	
	DL: Ait			L SUR			• •	rever	ne side)		E BI I WAL	10 APO \$EX124 NO.	
11/51 1 50	LOI ETION		DECO.	OL CTIO	\h.I. P	250007		10 1 0		6. IF INDIA	M, ALLDY	TIRE OR TRIES NAME	
WELL CO					-	KEPOKI	An	יט נטי	<u> </u>	N/A			
	wı	iec 🗀	WELL X	DET	ш	Other				7. UNIT AGE	EEBM B NT	PAMB	
N TYPE OF COM	FORE TO PE	EP- []	Pt.Cg	DIFF.	\Box	Other				N/A S. FARM OR	LEARS	NAME OF THE PARTY	
2 PAME OF OFFIAT	•00 <u> </u>		SACE	RSSTR	<u> </u>							.eumReserveNo	
Husky Oil NI	PR Operati	ons.	Inc.							D. WELL NO). 	E CHILLES EL VERIO	• -
3. ADDERSO OF OPER	4708									So. Ba	TTOW	No. 14	
4. LOCATION OF WEL	et. Suite	600 Ion oleari	inchora	ige AK	ith es	99503 v State rev	in terts	ife) *				w Gas Field	
	300' FWL,									11. acc 7.	R., M., C	A STOCK THO SOULAND	
At top prod. late	erval reported b	elo T								04.482	•		
At total depth	Same									Sec 25	T22	N. R17W	
•	-			14. FERE	ET PO.		DATE	IBBUTO		12. COUNTY		13. 27.22	
				N/A						North S	Slope	Alaska	
15. DATE SPUGGED	15. DATE T.D.	REACHED			edy to	I .					İ	LEV. CARENGERAD	
1/28/77	2/14/77		3/	/1/77	- urr	TIPLE COMP		<u>12'; Pa</u>	<u>id: 1</u>	71; KB:	30.	N/A	
2257'	213		·		IOM X				LED BY		1	CARCA FOOLS	
76. PRODUCING (STEE	,	_	to F-TOP,			40 490 770	١.	1		0-225	25.	. WAS DIRECTIONAL SURVEY MADE	
											-	BURNEY MADE	
2130-1947';	Barrow Sa	nd										No.	
DIL, BHC/Sor			FDC/	court et	TO I	CD T / SZDST						TR MELL CORES	
29.	IIC/OK, HE	U, PRIL		G RECORD			_	(Dec n			No		
CAULTO BIZE	WEIGHT, CA	/ 51 . 1	METTE SET	(MD)	HO			CEN	ENTING	LUCURD		AMOUNT POLICE	
20"	133		53			26"		опе				-0-	
10-3/4"	51		1042	_		3-1/2" 3-1/2"				rost II			
	32		1947	/ · · · -		5-1/2"				rost II	(+b-)	-0- Z CaCl _a	
29.		LINEE 1	EECORD				•	30.		UBING REC		2	
tins	TOP (MB)	воттом		ACES CHES	TK &a	SCHARN (MD)	1126		DEPTH AFT ()	(0)	PACKER SET (MD)	
5 1/2"	1822'	2125	<u>-</u>	-0-		N/A		2 7/8	<u>"- -</u>	1754'	ROSH -	None	
31. PREFORATION BEC	om (Interval, s	ter and n			<u>!</u>	1 82	AC	2D. 550°C.	FRACT	BASI GENTL		MATE PTC	
						DEPTH 1						ATTRIAL TRED	
										- ΙΛ <u>ΝΙ 1</u>	g 100	2	
Иопе											., 130	-	
										NERALS MAINA			
32.						CCTION		<u>-</u> -		ANCHORAGE,			
DATE FRUIT PRODUCTS	P3 (**)	CCTION M	ETHOM (F)	toing, gas i	4/t, pa		e and i	790 07 pm	·#)	FAI	STATUE st-(m.)	(Producing or	
2/24/76 DATE OF TREE	BOTAN TEATER	lowing	ED 4188	PROD'W.	me	OIL-BEL		548— <u>V</u>		Shu	t in		
2/12/77	2		<u>√</u> 8″	TREE PER	1100	-0-		Rate o	f 2.5	-0-	- '	N/A	
PLOW. TUBBLE PRINCE.	CARING PROMOC	TE CAL	CULATED DUE BATE	OIL-BBC	-	GAR	wcr.		WATER-	-19L.	01L QF	N/A AVITT-AFI (CORR.)	
700# 34. DIAPORITION OF G.	-0-	-	-	<u> -o-</u>	•		CFCP	2.5	-0		N/A		
		* 1002, 002						2		TEST WITTE	****		
N/A 35. List of Affaces	K E N T E		—·-		_			-		N/A		_	
None													
36. I hereby certify	The the forego	ト ト	77	ormetion is	com p	ets and co	rect at	determine	d (rom .	all available	ecorde		
STONED		1/la	<u>X</u>	_ rt fu		<u>Drilli</u> r	g Ma	nager		DAT	<u>.</u> 3.	-16-77	
	/												

*(See Instructions and Spaces for Additional Data on Reverse Side)

OFFICE OF OIL & GAS SUPERVISOR, ANCHORAGE, ALASKA. This amends original signed March 16, 1977

F-15-7				MEDS.	ייטם או דו	LICATE •	i	
		STAT	TE OF ALASKA			See other in		
	Oil	AND GAS CO	NSERVATION	COMMITTE	_	fructions on gammid side:	50-023-200	009
WELL CO	MPLETION	OR RECO	MPLETION	REPORT	AND L	og •	N/A	ATTON AND SERIAL NO
LA TYPE OF WEL	.L. (1)	ili 🔲 weit	اللَّا و الْآلَانَ	Other				OTTEL OR TRIBE NAM
TYPE OF COM	PLETION:						N/A	
wett. X	D1 48 122 87	EP DACK	CESTS -	Other			L UNIT, FARM OR	
Husky Oil NP		ons, Inc.					D. WELL NO.	leumReserveNo
3201 C Stree				9503			South Barr	Ow Well No. 1
4. LOCATION OF WEL	LL Report locat	ies clearly and in	accordance with di		emberg) *	-	4	
At top prod. Int	•	1800' FNL		ONSHORE FIE			U. SEC., T., R., M., OBJECTIVE:	POTTON HOLE
At total depth	Same			JAN 1	8 1983		Sec 25, T2	2N, R17W
				MINERALS MAN	AGEMENT SE	rvice	LE PERMIT NO.	•
II. DATE SPUDDED	IL DATE TO. R	EACHED (U. DAT					N/A	LEV CASINGHEND
1/28/77	2/14/77		3/1/77	GL	: I2':	Pad: 1	'; KB: 31'	N/A
I TOTAL DEPTH. ME	& TVD L. PLU	S. BACK NO	E TVDbs. IF MULT	TIPLE COMPL.	1 m.	ART TOOLS	INTERVACE DELL	
2257'		2130'	1	N/A		TARY TOOKS	0-2257	- CABILE T ALA
4. PRODUCÍNO INTE	AVALISH OF T	US COMPLETION	-TOP. BOTTON N	FAMOS (MOD A)	ID TYD).		i i	SURVEY MADE
2130-1947';	Barrow Sar	nd					1	No
DIL, BHC/Son			CNL, SWC,	CBL/VDL			_	
CASING SIZE	Y		RD (Report all strong					
20"	133	K-55	53 t	26"	None	CELEVITA	G RECORD	ALIOUNT PULLED
10-3/4"	51	N-80	1042'	13-1/2		x Perm	afrost II	 -0-
7"	32	N-80	1947'.	8-1/2	760 s	x Perm	afrost II	=8=
	<u> </u>				+ 125	sx Cl	ass "G" wit	H 2% CaCl ₂
	VER RECORD		· · · · · · · · · · · · · · · · · · ·		27	TU	BING RECORD	
5 3/2 ^H	TOP (MD)	BOTTOM (300)	SACKS CENEUT	SCREEN NO			DEPTH SET (NID)	PACKER SET :MD:
3 112"	1822'	7125	-0-	N/A	2 7	/8"	1754	None
PERFORATIONS OF	PER TO PRODUC	i 1708 (Intervel.)	size and number)	A.C	ID SLCT F	SACTURE.	CELIENT SQUEEZ	<u> </u>
				או נודשס			IT AND KEED OF M	
None								
						Щ.		
30.	•	PRODU	CTION	<u> </u>		!		
DATE FIRST PRUD	UCTION PRO		D : Flowing, gist life,	pumpinguse à	nd type of p	ump,	IV.LLL STATE	S Producing or
2/24/76	F)	owing					Shut 1	
	HOURS TESTED	CHOKE SIZE	PROD'N FOR	OIL-BEL	GAS-	KCF	WATER-SEL.	GAS-OIL BATIO
2/12/77 FLOW TUBING	2 CASING PRESSU	3/8"		<u>-o-</u>		I/A	0-	-0-
PRESS. 700#	-0-	RE CALCULATED	-0-	Rated	2.5	₩ΑΪΕ Ω	SEL OIL G	RAVITY-API (CORR.)
31 DIEPUSETSON OF	CAR (Sold, meed	for fuel, vented, et	(c.)	- takere	PD	<u> </u>	TERT WITSERARD 6	
N/A								
None	ETRIKE		<u></u>				· _	·
	7 that the fores	olog and attached	Informatina la cos	aplete and cor	ect as Cela	ran bed teas	a all available reco	rde -
101	R1	me 1						
SIGNED! 3/	-'}/ -	1112ad	TITLE .	Drilling	Manage	<u> </u>	DATE _	3 - <u>16- 77</u>

*(See Instructions and Spaces for Additional Data on Revene Side)

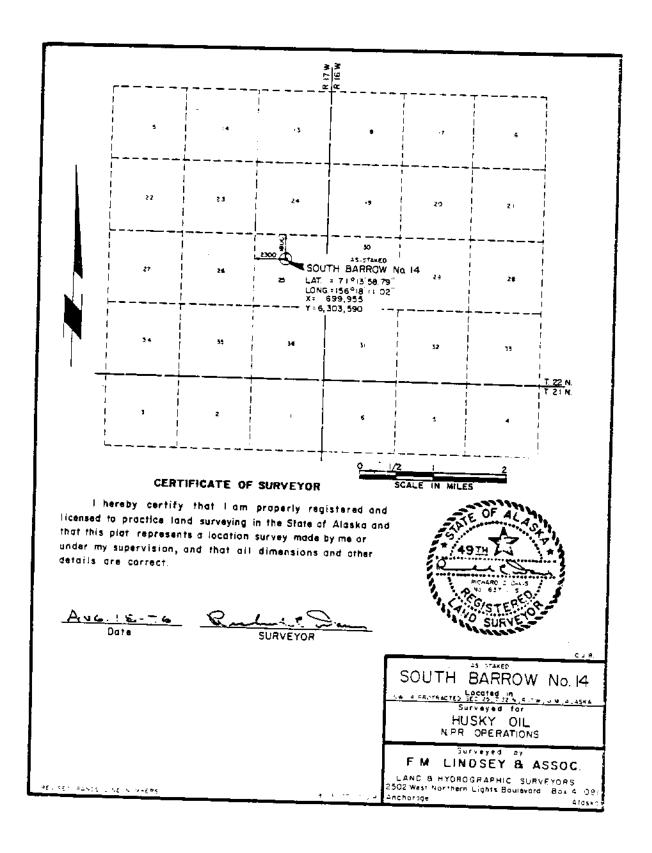
DIVISION OF OIL & GAS CONSERVATION, ANCHORAGE, AK, This amends original signed March 16, 1977

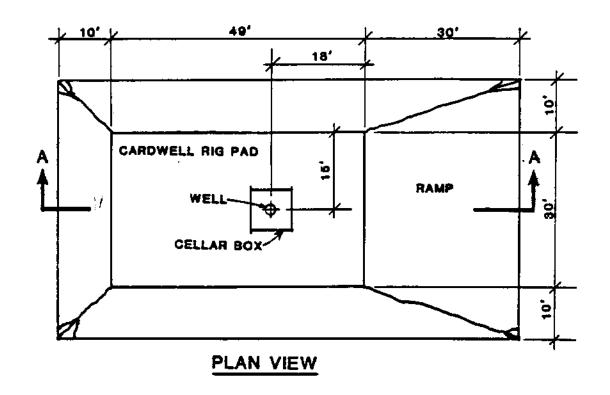
Amended 1/14/83

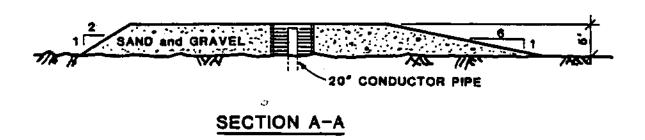
	AMENDED
UNITED STATES DEPARTMENT OF THE INTERIOR GEOLOGICAL SURVEY	5. LEASE N/A 6. IF INDIAN, ALLOTTEE OR TRIBE NAME N/A
SUNDRY NOTICES AND REPORTS ON WELLS (Do not use this form for proposals to drill or to deepen or plug back to a different reservoir, Use Form 9-131-C for such proposals.)	7. UNIT AGREEMENT NAME N/A 8. FARM OR LEASE NAME NACIONAL
1. pii gas 🔀 other	Petroleum Reserve in Alaska 9. WELL NO.
2. NAME OF OPERATOR National Petroleum Reserve in Alaska (through Husky Oil NPR Operations, Inc.) 3. ADDRESS OF OPERATOR 2525 C Street, Suite 400, Anchorage, AK 99503 4. LOCATION OF WELL (REPORT LOCATION CLEARLY, See space 17 below.) AT SURFACE: 2300' FWL; 1800' FNL AT TOP PROD. INTERVAL: Same AT TOTAL DEPTH: Same	South Barrow Well No. 14 10. FIELD OR WILDCAT NAME East Barrow Gas Field 11. SEC., T., R., M., OR BLK. AND SURVEY OR AREA Sec 25, T22N, R17W, UM 12. COUNTY OR PARISH 13. STATE North Slope Alasks 14. API NO.
16 CHECK APPROPRIATE BOX TO INDICATE NATURE OF NOTICE, REPORT, OR OTHER DATA	15. ELEVATIONS (SHOW OF, KOB. AND WD) 31' KB
NOTICE OF INTENT TO: SUBSEQUENT REPORT OF: TEST WATER SHUT-OFF	(NOTE: Report results of multiple completion or zone change on Ferm 9—330.)
17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state including estimated data of starting any proposed work. If well is directly measured and true vertical depths for all markers and zones pertinent.	
Operation: Re-enter and clean up well, install pr See attached completion procedure for	oduction tubing and test well. details.
Starting Date: February 23, 1979	received Deputy Minerals Manager Onshore field Operations
	JAN 1 8 1983
	MINERALS MANAGEMENT SERVICE 411 W. 4TH AVE., SUITE 2A ANCHORAGE. ALASKA 97501
Subsurface Safety Valve: Manu. and Type	Set @ Ft.
18. I haveby certify that the foregoing is true and correct SIGNED OF A CHARLES TITLE Chief of Operation Conforms with Conformation with Conforma	tioneare 17 January 1983
30 CFR 221. This amends original signed	Amended 1/14/83

"See Instructions on Reverse Side

Form 3-230 (Ster. 6-42)										AFTER		
(24-2)			UNITE					UPLICATE: (See other	10-		Form a Bud e rt	oprovel. Bureau Na. 42-R385.6.
	DE:		MENT C				₹	ACPOPULATE FOTOTO DA		LEASE DE	JIGPAT	TUN AND BESTAL HO.
		<u> </u>	EOLOGIC	AL SU	RVET	<u> </u>			N/			
WELL CO	OMPLE	TION (OR RECO	MPLET:	MOI	REPORT	AND	LOG*	- 1		. ALLO	TIES OF TRIME NAME
In TYPE OF WE	LL:	OH:	U WELL	. K	a	Other			_ N/	M THIT AGE	EIMEN	FAME
N TYPE OF COL					_	Inst	all p	roducti				
WALL L	OF RB		LACE.		* R. 🗀	Other				FARM OF		Meclonel
2 NAME OF OPERA	Na		Petrole			in Alaski	1			trole		eserve in AK
Chrough He	ISKY UI	I NPK	<u>Uperar</u> 10	ns inc	<u> </u>				sc	. Bar	cow 1	Well No. 14
2525 C Str	eet, S	uite 4	00, Ancho	rage,	AK	99503						. GR WILDCAT
4. LOCATION OF W				actoriance	spith ga	y State requi	remente)'	•				W Gas Field
At top prod. is		•	800' FNL						**	OR AREA	 2 (SE SCOCK AND SCREEN
At total depth	Sam	e		1 14 40	MIT NO.		DATE IMA	14- 4 -1-		c 25,		N, R17W
					Martin Mu		3418 166			PARLEM		
15. DATE SPUDGED	16. 94T	T T.D. BEA	1 .	N/A	Ready t	s pred.) 18	. BLBTATI			rth 5)		Alaska
1/28/77		14/77	1	./77		GL	: 12'	; Pad:	17';	KB: 31	ŀ	N/A
2257'	1		MOK T.S. MO A	22.	и жок И М	TIPLE COMPL.	· 2	3. INTERVAL	t i	TARY TOO:		CABLE TOOLS
24. PROSCRIME INTE	 E TAL(B), (130'	P. POTTOM.					1 0	-2257	25	. WAS DIRBOTIONAL
											-	SCREET MIDE
2130-1947	-											No
DIT PUC/S			-	c /m=	C***	mar /mar						TO METT CORED
DIL, BHC/S	onic/G	χ, ακυ,				ODL/ YUL		-111			No	
CTUTHO SIES	WERE	FT. LB./FT.				CE SIER		CENERT	44 AMCO	15		AMOUNT PULLED
- 20 ^H	_	33		531	2	6"	None	е.				-0-
10-3/4"	_	51		421		1/2"		x Perm			:	-0-
	-	32		47'	8_	1/2"		sx Perm 5 sx Cl				<u>-0-</u>
29.		LI	NER RECORD				30			G RECO		CaCl ₂
ACX	TOP (M		PTTOM (MD)	SACES CE	K ful.	SCHARF (MI	-	Atta	047-1	SET (MI	»)	PACEES SET (MD)
5 1/2"	1822	- -	2125'	<u> </u>		N/A_	2	7/8"	2108	. 76		None
SI. PERFORATION DE	cose (fati	rval, ries	and number)	<u> </u>		1 32	ACID	SHOT. FRA		PECE		hide in I was a
						DEFTE INT			******	HORE FICH	OPER	ATHRIAL CESO
None												
]				MMI.	8 <u>1</u> 9	83
						1			MINE	ALS MANA	CEMEN'	t ersyler
33.4 MATO PIEST PRODUCT	=:					UCTION		···	41	CHOSAGE	· C. S.	2.5.
2/24/77	PADK	1	OF METROS (Flawing, go	a 11/1, 🙀	om ping—siss (tind type	of pump)		T WELL I	PATES.	Production or
DATE OF THEY	HOCAR 1		owing	PEOD'R	. FOR	GIL SOL	<u> </u>	LO-HCF.		Sh	ut-1	DI BATTO
2/27/79	8	-	16/64	TERY 7	TEIO		1	282.8	1 ~	125-114.	Ι,	IXS-VIL EATIN
FLOW. TUSKER PRODE.		PRESECTE	CALCULATED 24-MOUR BAS	016-0	#L	(CAB-1	ICF.		P-1		OIL GE.	ATITY-API (CORR.)
767 psig 84. disposition of (1 727.7	psig		1		1223	<u>.9.</u>					
Vented		, ,=.	., at #.]						TES	L MITZERI	180 11	
35. LIST OF ATTACE	HERTO								1		—-	
38. I bersey carries	that the	foressis -										
36. I hereby certify	1	0/	2	··· Prmatigo	re comb	tere and corre	ct so det	ermined (ro	B all 47	utlable re		7
signited //	ax	$\neg \wedge \subset$	reur	TIT	LE Ch	nief of C	<u>perat</u>	ions, C	NPRA	DATE	14	January 19
		"(See le	nstructions a	nd Space	s for A	dditional D	ata ce	Revers	.de)		$-\theta$	1/
	This	amends	original	signe	d					ended	1/1	4/83







SOUTH BARROW NO. 14 DRILL PAD

OPERATIONS HISTORY

DATE AND FOOTAGE DRILLED AS OF 6:00 A.M.	ACTIVITY
1/18/77	Waiting on ITT Cats to move rig and C-250 pump house.
1/19/77	Attempted to pull rig off No. 13 pad. One corner of rig iced in. Boiler down. Chipped ice from rig. Moved C-250 pump house and three sleds to No. 14 site. Unloaded sleds at No. 14.
1/20/77	Moved and set rig. Moved and set C-250 pump house. Moved five sleds of miscellaneous equipment. Moved four camp units.
1/21/77	Rigging up. Moving camp.
1/22/77	Moving main camp. Last four sleeper units being tied in. Heat to main camp at 12:00 midnight. Continuing rig-up.
1/23/77	Continuing camp set up; 90% complete. Continuing rig-up; 80% complete.
1/24/77	Camp 100% complete. Rig 95% complete. Preparing to drill conductor hole.
1/25/77	Rig up completed. Drilled conductor with 26" auger. Pilot bit worn out. Drilled pilot hole with bit. Opened hole with auger to 26".
1/26/77	Drilled 26" conductor hole. Lock pin connecting drive sub to auger dropped out. Fished out auger. Continued drilling conductor hole to 53' KB.
1/27/77	Ran one joint 20", 133# conductor and landed at 53' KB. Cut off and welded on OCT 20" 2,000 psi casing head. Cemented with 53 sacks Permafrost II. Waited on cement. Nippled up 16" Hydril. Filled mud tanks with water.
1/28/77	Nippled up 20" blowout preventer and mixed spud mud while waiting on cement. Spudded well at 1:30 a.m., January 28, 1977. Drilled to 104'. Repaired swivel.

1/29/77

Repaired goose neck on swivel. Drilled to 324' survey. Pulled out of hole. Picked up stabilizers. Ran in hole. Drilled ahead. Repaired swivel and washed out mud line. Drilling ahead.

1/30/77

Drilled ahead to 707'. Pulled out of hole. Serviced rig. Ran in hole. Conditioned mud and drilled ahead. Pulled out of hole and changed out swivel. Drilled ahead.

1/31/77

Drilled to 1048'. Circulated. Pulled out of hole. Steel-line measured, log run DIL, BHC-Sonic/GR, ran in hole. Cut drilling line. Repaired pump. Circulated and conditioned hole.

2/1/77

Circulated and conditioned mud. Rigged up and ran 10-3/4" casing, 34 joints, 51#, R-2. Landed at 1042'; float at 1006'. Circulated casing, cut off landing joint. Ran 3-1/2" drill pipe. Circulated casing through duplex collar.

2/2/77

Circulated casing. Cemented as follows: 20 barrels water, 760 sacks of Permafrost 11 at 14.8 ppg. Cemented until returns were 14 ppg. Full returns to surface. Displaced with 8 barrels water. Cement in place at 12:15 p.m., 2/1/77. Waited on cement. Cleaned mud tanks, changed liners.

2/3/77

Waited on cement. Nippled down 16" stack. Nippled up 10" stack. Mixed mud.

2/4/77

Nippled up 10" stack. Tested blinds and choke to 1,250 psi. Ran in hole with bit. Tested pipe and Hydril to 1,250 psi. Drilled float at 1006'. Cement at 1024'; shoe at 1042'. Tested shoe to 200 psi. Drilled, repaired pump, drilled. Unplugged flowline, surveyed.

2/5/77

Ran in hole with Bit No. 3. Drilled ahead. Repaired pump. Drilled ahead. Repaired swivel. Drilled to 1950'. Circulated and conditioned hole. Tight hole. Conditioned hole. Steel-line measured. Ran DIL, BHC-Sonic/GR.

2/6/77

Logging. Ran DIL, FDC/CNL, BHC-Sonic, HRD. Attempted to run sidewall cores. Guns stopped at 1050'. Ran in hole. Drilled to 1955' and conditioned mud. Pulled out of hole. Rigged up Schlumberger. Ran sidewall cores at 1652', 1650', 1647', 1618', 1616', 1614', 1578', 1576', 1553', 1548'. Full recovery. Ran in hole with drill collars and laid down same. Changed pipe rams and rigged up to run casing.

2/7/77

Ran 48 joints 7", 32#, R3 LT&C casing. Shoe at 1947.6'. Duplex collar at 1899'. Circulated. Ran in hole with drill pipe and stab-in. Stab in and circulated. Cemented with 15 barrels water, 760 sacks Permafrost II (14.8-15 ppg) (14.6-14.8 returns) plus 125 sacks Class G. Displaced with 13 barrels water. Pulled loose and equalized. Pulled out of hole. Raised blowout preventer and set casing slips with 80,000 pounds.

2/8/77

Waited on cement. Nippled up. Tested pack-off to 3,000 psi. Slip seal leaked. Nippled up blowout preventer. Changed pipe rams and kelly. Picked up bottom-hole assembly, ran in hole, drilled float collar at 1899'. Hard cement below float. Drilled cement.

2/9/77

Circulated and conditioned mud. Pulled out of hole. Rigged up Schlumberger and ran CBL/VDL/GR/CCL log. Cleaned mud pits. Mixed mud.

2/10/77

Mixed mud. Built calcium-chloride-spersene mud to 12 ppg. Rebuilt mud mixing system. Ran 7" line from pump to hopper. Revamped mud guns and jets. Continued mixing mud.

2/11/77

Circulated and conditioned mud. Tested pipe rams and Hydril to 1,250 psi. OK. Drilled out shoe. formation to 300 psi over 12 ppg. Mud OK. Drilled from 1955-2100'. Circulated and conditioned drill-stem test. Pulled out of hole. measured. Laid down 26 joints drill pipe, pulled out of hole. Picked up Howco drill-stem test tools. Ran in hole with drill-stem test tools.

2/12/77

Finished running in hole with drill-stem test tools. Tested lines and manifold to 1,500 psi. Loaded drill pipe with nitrogen to 500 psi. Set packer at 1890'. Opened tool at 9:34 a.m. Mud to surface at 9:40 a.m. Pulled chokes. Closed in for initial build-up at 9:58 a.m. Opened tool at 10:28 a.m. on 3/8" choke. Initial pressure: 180 psi. Built during test to 700 psi and stable at 700 psi last 15 minutes of flow. Closed in at 12:33 p.m. Ran pressure build-up to 5:12 p.m. Dropped bar and reversed out drill pipe while shut in. Circulated and conditioned mud. Pulled out of hole. Laid down test tools. Ran in hole with Bit No. 5.

2/13/77

Circulated and conditioned mud. Drilled. Repaired pump. Resumed drilling to 2182'. Dropped survey, pulled out of hole, steel-line measured. Ran in hole, circulated. Drilled to 2200'.

2/14/77

Worked on C-250 pump. Drilled to 2222'. Lost 80 barrels mud over shaker. Built mud volume and circulated. Drilled to 2257'. Circulated to core. Pulled out of hole. Picked up core barrel. Ran in hole. Broke circulation. Packed off. Lost 60 barrels mud. Picked up to shoe. Mixed mud, built volume.

2/15/77

Built mud volume. Well kicked, closed blowout preventer. Circulated out gas bubbles. Pumped 11.3 ppg lost-circulation material pill down drill pipe. Spotted on bottom; no returns. Built mud volume. Pumped 45 barrels lost-circulation material down annulus; could not fill hole. Pumped 11.0 ppg lost-circulation material down drill pipe; spotted on bottom; no returns. Total mud lost last 24 hours: 180 barrels.

2/16/77

Built mud volume. Added 20% lost-circulation material. Mud weight: 10.5 ppg. Filled annulus, pumped down drill pipe, started circulating. Started to build weight to 11 ppg. Lost circulation. Build mud volume. Mud weight 10.7 ppg with 30% lost-circulation material. Repaired pump. Filled annulus. Mud lost last 24 hours: 210 barrels. Total mud lost: 450 barrels.

2/17/77

Circulated and built mud weight to 10.8 ppg. Lost ±100 barrels. Mixed mud and lost-circulation material. Filled pits with 10.7 ppg mud. Circulated hole with 10.7 ppg mud. Pulled out of hole, laid down core barrel. Picked up Howco bridge plug. Set at 30'. Washed out and filled blowout preventer with CaCl₂ water. Tested blowout preventer to 300 psi and 1,200 psi. OK. Retrieved blowout preventer. Ran in hole with bit. Stayed in hole.

2/18/77

Finish trip in with bit. Circulated and conditioned mud. Repaired C-250 pump. Pulled out of hole to shoe. Circulated gas cut mud (cut 10.7 ppg to 10.2 ppg). Repaired pump. Pulled out of hole. Ran in hole open ended, picked up 23 joints drill pipe. Circulated. Worked on C-250 pump. Circulated. Rigged up to cement at 2257'. Cemented with 3 barrels H₂0 with 2% CaCl₂, 25 sacks Class "G" with 2% CaCl₂. Displaced with 14 barrels mud. Cement in place at 2:00 a.m., 2/18/77. Pulled out of hole 9 stands. Circulated and conditioned mud (in 10.7 ppg, out 10.7 ppg). Pulled out of hole.

2/19/77

Ran in hole to 7" casing shoe, circulated out lost-circulation material and waited on cement at 2:00 p.m. Ran in hole, tag cement top at 2114'. Drilled firm cement to 2128'. Circulated bottoms up for logs.

Pulled out of hole. Rigged up Schlumberger to log. Ran DLL/SP, BHC Sonic/GR, FDC/CNL/GR, MLL, Sidewall Cores at 1964', 2003', 2020', 2038', 2050', 2058', 2066', 2080', 2113', 2120', 2133' (logger's depth). Ran high-resolution dipmeter, logging.

2/20/77

Finished logging with high-resolution dipmeter. Ran in hole, steel-line measured, found cement top at 2191'. Circulated and conditioned mud. Pulled out of hole, steel-line measured, ran in hole, steel-line measured, with open-ended drill pipe. Circulated cement with 3 barrels 2% CaCl₂, 15 sacks of Class "G" with 2% CaCl₂, and 1 barrel of water with 2% CaCl₂. Displaced with 14-1/2 barrels mud. Cement in place at 6:15 p.m. Pulled out of hole to shoe. Circulated. Pulled out of hole. Picked up bottom-hole assembly, ran in hole. Circulated at 7" shoe. Waited on cement.

2/21/77

Circulated and waited on cement. Wash and dress plug to 2130'. Good cement. Circulated and built volume. Picked up and washed through Barrow sand interval to wash out lost-circulation material. Laid down drill collars. Rigged up and ran 5-1/2" liner and bottom hanger. Liner stopped at 700'. Pulled out of hole and laid down hanger and liner. Ran in hole and circulated. Machined casing cross-over sub for greater clearance.

2/22/77

Pulled out of hole with drill pipe. Rigged up. Ran 5-1/2" liner on bottom packer and hanger. Shoe at 2125', hanger at 1826', packer at 1822', setting tool at 1818'. Changed rams to 2-7/8. Tested to 1,400 psi. Ran 67 joints 2-7/8". Circulated at 2097'. Landed at 2095' which was 12' below perforations (1916-2083') in slotted liner. Nippled down.

2/23/77

Nippled down blowout preventer. Cleaned pits and filled with water. Built weight to 9.0 ppg. Pulled back-pressure valve and reversed mud out tubing. Well did not flow. Pressured tubing with nitrogen to 600 psi (19 bottles). Returning out annulus. Released nitrogen and well flowed through annulus. Blowing well down to clean up.

2/24/77

Continued to flow well and clean up. Cleaned choke lines and filled with diesel. Alternate flow through tubing and annulus. Shut in and lubricated alcohol down well. Opened to flow: 1/8" choke - 883 psia and 334.75 MCFD; 1/4" choke - 792 psia and 1,254 MCFD; 3/8" choke - well began forming hydrates, flow would not stabilize. Lubricated alcohol down well and blew down.

2/25/77

Continued flowing well on 3/16" choke; 865 psia and 753.5 MCFD. Opened to 3/8" choke; 690 psia and 2,515 MCFD (short-term rate). Well began hydrating in wellbore. Shut in and lubricated alcohol down annulus and tubing. Blew well down. Flowed well on 3/16" choke (865 psia and 753.5 MCFD). Rigged up Camco and pressure tested lubricator to 2,000 psi. Ran two bottom-hole pressure bombs and hung at 2073'. Bombs on bottom at 8:00 p.m. Shut well in for 72-hour buildup at 10:00 p.m., 2/25/77.

2/26/77

Well shut in and Camco bottom-hole pressure bombs hanging at 2073' recording 72-hour buildup. Tree pressure: 860 psig.

2/27/77

Well shut in. Camco bombs hanging at 2073' recording 72-hour pressure buildup.

2/28/77

Well shut in. Camco bombs hanging at 2073' recording 72-hour buildup at 20:00 hours. Pulled out of hole with recorders. Stopping at 1750', 1500', 1000', 500', one-half hour for gradient survey. Killed well with calcium-chloride water. Installed back-pressure valve, nippled down tree.

3/1/77

Nippled up blowout preventer. Tested to 1,250 psi. OK. Circulated tubing. Pulled out of hole with tubing. Picked up Baker Mercury Model K retainer. Ran in hole. Set retainer at 1772'. Laid down one joint tubing. Hung tubing at 1754'. Nippled down blowout preventer. Nippled up tree. Tested seals to 3,000 psi. OK. Cleaned mud pits. Rigging down. Released rig at 7:00 a.m., 3/1/77.

DRILLING TIME ANALYSIS

SOUTH BARROW WELL NO. 14

PARCO, INC., CARDWELL MODEL H

Spudded 1/28/77, Rig Released 3/1/77

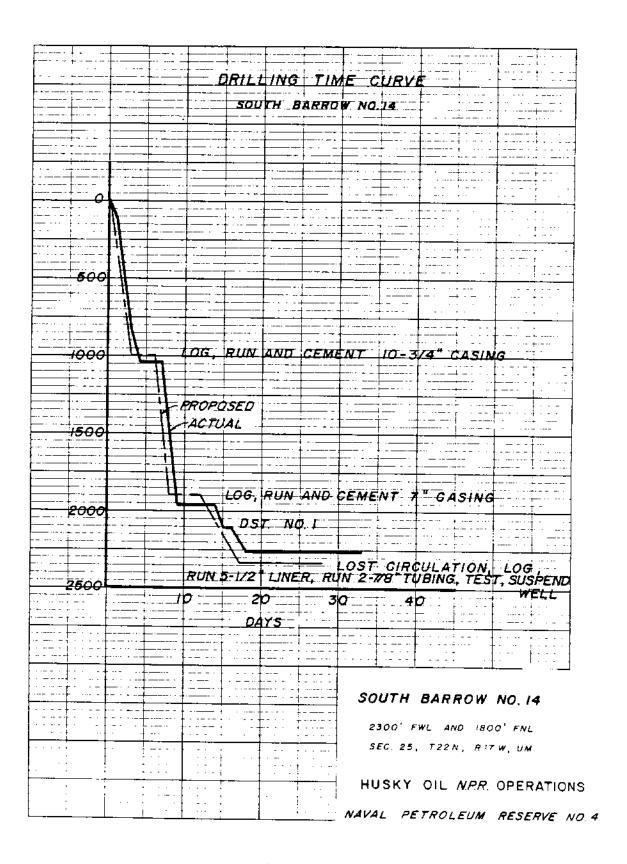
Total Depth: 2,257 Feet

1-22	1
	2

Page 1 of 3	Comments			Move Camp	Set Up Camp		Hole		Set 20" conductor at 53'	Spudded Well at 1:30 a. m.			Ran Schlumberger Wireline Logs	Ran 10-3/4" casing. Landed at 1042'.		ow Line
NO. 14	Operations at 6:00 a.m.	Move Rig	Rigging Up	Rigging Up	Rigging Up	Rigging Up	Drilling 26" Conductor Hole	Fishing For Auger	Nippling Up Hydril	Repacking Swivel	Drilling	Drilling	Dropped Totco P.O.H. Laid Down Stabilizer		Waiting On Cement	Nipple Up B.U.P.s Install Kill Line & Flow Line
SOUTH BARROW WELL NO.	W O MAT./EQUIP.								9	Ω.	-	23	13	154	13	214
ARRO	DIR. WORK			\dashv		\dashv			-							
Ĕ	SONEEZE CEMENT			\dashv						\dashv						
S	PLUG BACK			-	_				-	-		-				
	Tag															
ِ ا ن	СОВІИС											-				
ATIONS, INC.	FISHING						=	4								
NO.	LOST CIRC.															
RAT	CHANGE BHA						Ī									
OPER/	TEST BOP															
NPR	NIPPLE UP/DOWN 80P				Ì			12	8						Ξ	=
	MOC															
HUSKY	CASING & CEMENT							4					10,5	m		
Ī	гоееіие					_	\neg				٦٤٠	g			\neg	-
35)	CIRC. & COND. MUD									امد	_/(7		275			<u> </u>
ПОF	श्राठ सहस्र्मास												٠,٢	~	\dashv	_
5 (+	RIG MAINT.					-	\dashv	\dashv								
.Y51	DEV. SURVEY					_			\dashv	-	+		\rightarrow		\dashv	—
ANALYSIS (HOURS)	чіят			-			+		\dashv	6,3	===			25	-	— —
	REAMING		1		\dashv		-	\dashv					$\frac{\omega}{1}$			
TIME	ОВІГГІИС			-	_		- 6	4		2	<u></u>	 101	-			9,7
DRILLING	RIG UP/RIG DOWN	24	24	24	24	24	4	+	\rightarrow		\exists	-7		_	_	9
)RIL	DATE													+	+	-
		1977	1-21	1-22	1-23	1-24	1-25	1-26	1-27	1-28	1-29	= ==	1-31	2-1	2-2	2-3
				2	6											

₁	t			, 2				,						F		_
Page 2 of 3	Comments		Ran Schlumberger Wireline Logs	Shot 10 sidewall cores, recovere 10. Ran 7" casing at 1947'				Changed to calcium-chloride ud spersene mud.		Ran DST 1955-2100'		ud T.0. 2257'	Circulation	ud For P.O.H.	9	lars
0. 14	Operations at 6:00 a.m.	R.I.H. W/Bit No. 3	Logging	Broke Kelly, Changed Rams From 3½" to 7"	Install Gray Packoff	Drill Out Float Collar	Mixing Mud	Mixing & Conditioning Mud	R.I.H. W/HOWCO DST Tool	R.I.H. W/Bit No. 5	Drilling	Circulate & Condition Mud	Condition Mud For Lost Circulation	Regain Circulation Circulate & Condition Mud For P.O.H	Going In Hole w/Bit No.	taving Down 9" Orill Collars
	ЯЗНТО	77	~	5½		3	3	9				1				215
불	W O MAT./EQUIP.															
ROM	рів, мовк															
Н ВА	SONEEZE CEWENT															
SOUTH BARROW WELL NO.	PLUG BACK															
	Ted					\dashv									<u>-</u> .	7
	СОВІИС					\dashv			7		-	2%			1,4	
INC	FISHING										_	_2			1	
ONS, INC.	LOST CIRC.							-						\dashv		
_	CHANGE BHA											-				
OPERAT	TEST BOP	\dashv														
	NIPPLE UP/DOWN BOP	\dashv			193, 3	-			- 2			-			-	
NPR	M O C				╗										_	
HUSKY	CASING & CEMENT			9						-						
1 1	гоесіис		16				3,7			-		_		\rightarrow		
5) -	CIRC, & COND, MUD	C) J		-25-		6 3	132 3	81	9	14	トルナ	- 61	-		_\0	P11.37
(HOURS)	RIG REPAIR	2,5	rtter.	1 8%		9	_	-	_	2 1	1 6		24	1 22	5 612	4 3
	RIG MAINT.					\dashv	\dashv		-							<u></u>
ANALYSIS	DEA' SURVEY	_				\dashv	\dashv					-				
AL	q1 8 T	9,3	:4		-2"	mar.	n I	-	- 9	m ₁ ±	74	371	-		74	····-
	REAMING	6	4	<u>س</u>	-	Sp.			-	29 19	9	-17.			10%	9
TIME	סצוררומפ	66			\dashv	- 2	-		ω							
DRILLING	RIG UP/RIG DOWN	- 1			_				~	කි	10					
1 F F	3TAQ			+	\dashv				_	_	\dashv		-		$\overline{}$	
D.R.		2-4	2-5	2-6	2-7	2-8	2-9	2-10	2-11	2-12	2-13	2-14	2-15	2-16	2-17	2-18

Page 3 of 3	Comments			pn	Ran 5-1/2" liner to 2125'			Ran Two B.H.P. Bombs and Hung at 2073'			Killed Well with calclum- chloride water.	Rig Released at 7:00 a.m.	Riqqing Down	Moving Out Rig & Associated		
NO. 14	Operations at 6:00 a.m.	Rig Up & Run Dip Meter	Circulate LCM at SMO 8	Circulate & Condition Mud	Nipple Down B.O.P.	Swabbing	Testing	Well Shut in CAMCO Recorder In Hole	Well Shut in CAMCO Recorder In Hole	Well Shut In CAMCO Recorder In Hole	Nipple Down Xmas Tree Nipple Up 8.0.P.	Rigaing Down				
ÆLL	ОТНЕЯ	74	1	91,4	2	24	24	24	24	24	3,5				2073	
NMO	W O MAT./EQUIP.		<u>.</u>													٠ ا
BARR	DIR. WORK					.						_			÷	
SOUTH BARROWN WELL NO.	PLUG BACK						_	_								ቀ '
S	TSO			_				_	_						7/0	
 .:	СОВІИС		-				\rightarrow	-								4
OPERATIONS, INC.	FISHING												\dashv		33	:
NS,	LOST CIRC.											1				_
ATIC	CHANGE BHA	_			_							_				ا ا
PER,	TEST BOP	-									-34		\dashv		7,2	۲
NPR 0	MIPPLE UP/DOWN BOP	\dashv			12						7					ğ
	M O C				$\neg \uparrow$				_						٠	<u> </u>
HUSKY	CASING & CEMENT	75	4	و							_					48
I.	гоеение														29½	Ì
R5)	CIRC, & COND, MUD	6 4	13%	9	2						~					183
(HOURS)	RIG REPAIR	14	14												171,	
	RIG MAINT.														,	_
ANALYSIS	DEA: SURVEY														-	
ANA	TRIP	\$₹	4	2 4		\downarrow					Ų.					120%
TIME	BEFWING DBITTING		_	\perp					_		_				ļ	
	RIG UP/RIG DOWN			_							_		_			<u>e</u>
DRILLING	DETE		-			_	_	-	\dashv		7	24	24	24	203	
DR	1210	- 19	2-20	2-21	2-22	2-23	2-24	2-25	2-26	2-27	2-28	3-1	3-2	3-3	TOTAL	OURS
	<u></u>	2	2	29		2	2	2	-21	7	2	m	<u>_</u> ল	<u> </u>	<u> </u>	<u> </u>





BAROID DIVISION N.L. Industries, Inc.

ö	
7	
age	1
۵,	

CASING PROGRAM: 20 meh of 53 ft.	10 3/4 net at 1042 ti.	RNG 17W 7	701AL 0EPTH 2257	CEC	Mud. REMARKS AND TREATMENT		Run 2" stream water to contron	DST.	'ey hole. Drill ahead.	POH for log.Circ, to run 10 3/4"	Set 10 3/4" csg. at 1.042".	dump & clean	iners.	Nipple up BOP, Mix new mud.	POH for survey tool - A.M.	ig ahead.	Rig up schlumberger no fill in	-	Run 7" csg. to 1,450'.	WOC	Dump & clean pits.Mix CaCl, mud.	Mixing CaCl mud, Wt. to 12.0 ppg		h 6" bit.	Trip for bit @ 2181".Drlg. ahead.	ă	Lost circ. well kicked, Build	11.0 ppg mud.	77 1	lost on trip out.	Cement plug set on btm.to 2130'.	M in mud.	Plug didn't set.Circ.& recement.	RIH with 5" liner.	Run 2 7/8" tubing.		CaCl ₂ to 10.7 ppg.	CaCl ₂ to 10.8 PPG.
		TWP 22N		H	* E	94	90	_		88	88	-		95	6	88	88	1	88	88	-	8	06	8	83	83	+	-	Q.	90	82	87	87	87	87	\dashv	+	
			Rintoul	RETORT	ōr					+							+	+	1	Ť	\dashv	\dashv	<u></u>			+	+	+	1	+	1	-	-	1	1	1		+
		25	Rin	ll	년 경	9	L T		77	12	12			2	Θ	12	12		12	12		2	01	16	17	17		Ţ,	7	4	57	-	<u> </u>	13	2			
		SEC.	<u>t</u>	SAND	١.	T,	2.5		s.	,25	. 25			٥	ب.	<u>~</u> ′	.75	_	ហ្វ	ر.				N	С.	ស		_ 	¥.	I.K	E	0	0	0	0			
		₩. 4	Beatty	LYSIS	. E	9	40		20	50	40			50	110	9	30		2	30		0000	00000	1,000	5000	3,000	Ī		0000	0000	46000	49000	0000	2000	92000			
		pe (NPR	Aimes,	FILTRATE ANALYSIS	٥ <u>١</u>	450	2000	•	2000	00.	760			450	650	650	650	1	650	650		90000 50000	90000 50000	7500041,000	0700055000	06000 23000	+	- 00		04000120000	00000	00000 49000	00000 80000	10100095000	05000		1	
ska		Slope	- 1	T I	F.	.2	7		~	rų.	10			اتى 	7:	Ŋ	~	+	٦.	~	1	_	+	6	بع. أ	d	1	Т	ب ارد	•	=44°			0	7	+	\dagger	+
Alaska		ż	GINE		PF						ì				Ì	Ì	Ì		1	1				Ħ,		1		Ţ	Ť	1	Ť	-!	9.6	캬	ᅾ		†	\top
	ا <u>ځ</u>	NO	ě,	ا چ	9 %	_	7		CI I	<u>اً</u> ت	5			ᆈ	2	~	-	-1	-			7		7	-				r	ri.	~				7			
STATE	COUNTY	LOCATION	. BAROID ENGINEER	FILTRATION	HTH	۵	ما		- -	m j	!aa	<u> </u>			O.								ĺ			7	ntd p											
	Ì				_ g ◀	26.	24.		12.		12		<u>:</u>	Ÿ,	23	9	9.		4.4	9.8		5.0	5.0	8.2	<u>့</u>	2.5	Ind	0	0 C	7.0	7	آ ا ع	7.6	8.5	20		Τ	
			-26-77	핇	Strip 9	9.0	0.6	1	e. S.	69	9.0		i	10.5	2.5	9.0	0.0		8	5	- 1	1.5	1	5	10.5	0	.T	0			2 0	0	.5		10.0			
			05-2	2	<u>√1 ₹</u>	_		+	_	\dagger	+	H	—↓ !	-		-	+	+	+	+	+	듸	╗		-4	4		+	+	+	- 1	ųI,	٠ I	۵,	<u> </u>	+	\dotplus	+
4)	14	٠	DATE	GE	30 v 60	3/	7 5/8	_	2/4	<u> i </u>	2/4		_	2/3		[5/2		Si	_	-	ļ	2/2		13/4	8	3	1			5	7;	7,5	10/1	3/1	1		
(NPR	No.	Company	اّ	2	ŭ,	-	\vdash	\dashv	4	-+	4	 	<u> </u>	-	÷	+	ωį	+	4	-	-		_	$\overline{}$	_	9 5	2	4-	+	+	+	+	_	= :	4	4	4	41
	Well N		Alaska	VISCOSITY	à	5	8		GD :	5	2			4	6	FT	10	Į,	8	_	;	15	2	21	9	24	5			-		7	29	31	21			
Сомрапу	Barrow W	Drilling		VISC.	Sec AP	33	37		9€	34	33			30	37_	8	35		34	33		52	9	20	77	20	1	48	2 2	3 4	6	43	45	7	43	!	Ţ	
011			Fairbanks	WEIGHT	l6/gol	9,2	9.6		10.3	10.1	10.2	. 1		8.7	91	10.2	10,1		10.1	10.0		10.1	12.0	12.0	12.0	12.0		,	7	,	7-07	7.01	10.8	70.7	10.7	Ì	Ì	
Husky	South	Darco	- 1	DEPTH WEICHT	<u>;</u>	96	452	-	808	_	_	1048	Ì		1348			_	1955]	_	_	1955 1	2100	2100	2170 1	2257	V 1	53	2257		_	_	$\neg \neg$	_	\neg	2130	2130	
COMPANY	¥£ L L	CONTRACTOR	STOCKPOINT	DATE	1977	1-28	1-29	1	1-30	1-31	2-1	П	;	Ť	2-4	i	2-6	1	İ	İ	\top	ī	\exists	2	7	2-14	1	21.5	-	+	Ť	†	÷	\dagger	+	2-23	7 12	

PRINTID IN U.S.A.

BAROID DIVISION

Page 2 of 2

1042 h. 1947_H. 9,010.00 1947 101AL DEPTH 22257 121251 3,269.55 32,957.79 41,967.79 res. REMARKS AND TREATMENT 10 3/4 ar " _inch ed_ 355 AMOUNT 50 TECHNICAL SERVICE, í 34 days @ \$265.00 TOTAL MATERIALS CASING PROGRAM MATERIAL ZEOGEL SEC 25 TWP 22N RNG 17W 1,579.44 950.90 636.30 cost \$ 569.10 Mud. 356.88 1,067.08 6,431.04 Solds Oil Wange RETORT BAROID ENGINEER Aimes, Beatty, Rintoul 64 74 30 74 AMOUNT QN4S r, N L Industries, Inc. FILTRATE ANALYSIS ប៉ុន្តិ Bags by Husky) Spersene MATERIAL 154.18 KWIK-SEAL 357.90 WALL-NUT 514.70 DEXTRID 15,355.10 FIBERTEX ō š MICATEX 1,620.22 CELLEX LOCATION NPR 4 . E STATE Alaska 77.40 Strip D at HTHP Code COUNTY . . FIL TRATION CALCIUM CHICARIDE 0179 142 5 ្ព 1,583 AMOUNT _ DATE 2-26-77 Ę BICARB.OF SODA 10 50 0 1 AQUAGEL ALUM.STEARATE GELS CAUSTIC SODA MATERIAL COMPANY HUSKY Oil Company (NPR 4) South Barrow Well No. 14 BAROID BEN-EX CONTRACTOR Parco Drilling Company ٥ STOCKPOINT Fairbanks, Alaska VISCOSITY Sec API **BAROID DIVISION** 16 / gol DEPTH WEIGHT NOUSTRIES : WELL DATE

MUD MATERIALS Used (Total)

DRILLING MUD RECORD

118.18.1903.34

PRINTED IN U.S.A.

TOTAL COST

Sales Tax

Hugky Oil NPR Operations, Inc., NPR4 South Barrow Well No. 14

_												 				
1 10	v		H	н		Ī		<u></u>	<u> </u>							
DULL CODE	Ð	2	2	2		-	4	5	m		<u></u>					
3	-		5.	5		Ī	8	8	7							
	s >	32	38	37	38	50	50	50	09	0						
MUD	,	5.	9.3	7.6	9.4											-
-		10.	 		\vdash	112	12	112	112	•	<u> </u>					
PUMPS	R SP	45	45	45	45	50	50	50	3	٩					 	
<u> </u>	LINE	72	7,9	7,9	61/2	2	-21		v	~		<u> </u>				
PUMP	PRESS LINER SPM.	750	1000	1000	1000	009	600	900	909	0						
VERT	DEV	1/4	1/4	$\overline{}$	1/4			1 3/4	1 3/4							
POTARY VERT PUMP	R.P.M.	125	120	120	120	90	60	80	80	0		- ··· -				
•	1000183	A11/ 14	12/ 15	15/ 20	15/ 20	12	12	12	12/ 14	0						
FT. PER. WEIGHT	HR.	19.7	48.2	53.6	5		30.6	9.7	7.5							
ACC.	HRS.	3:15	709	69	7.0	72	80	884	5 ₈₆	² 786						
HRS	NO.	ኝ15	76	81,2		2	80		10	. 0		 				
		1010	977	456		0	245	82	75 1	0						-
БЕРТИ ЕТ ВЕ.	OUT	1048	1494	1950	1955	1955	2100	2182	2257	2257			<u> </u> 			
	3 6	_			_	0	0	0 2	0 22	<u>5</u> 2	0	 ļ.—				
SIZE	2	15 15	13 13	13 13	13 13	0	0	•	0	N/A	φ					
핔	_	15 1	13 1	13 1	13	0	0		0	<u>z</u> _	0				-	
ģ	BIT	-					-		-			!				
SE	P	2W-861	X2029	X2119	x2029	484FJ	484FJ	108FK	898FJ		898FJ					
±i8		05C 3AJ	X3A	X3A	X3A	UGJ	DGJ	063	DGJ	DIA	DGJ					
BIT	MFGR.	HTC	HTC	HŢC _	нтс	Smith	Smith	Smith DGJ	Smith DGJ	ACC	Smith DGJ					
181T	SIZE	13½	\$ ₁ 8	81,	81,5	9	9	9	9	32 / 5 32	9					
_F	NO.	-7	2	.3	RR2	7	RR4	'n	9	CrHd	RR6			 		

CASING INTRODUCTION

Casing programmed for South Barrow Well No. 14 was as follows: 20'' conductor at $\pm 80'$; 10-3/4'' at $\pm 1200'$; 7'' at $\pm 2500'$; and a 2-7/8'' production string if the well was to be completed. Actual casing run was 20'' at 53', 10-3/4'' at 1042', 7'' at 1947'. A 5-1/2'' slotted liner was run from 1822' to 2125', and a 2-7/8'' string of production tubing hung at 1754' to complete the well. The 2-7/8'' tubing had originally been run to 2079' for testing of the well, then was pulled, a retrievable bridge plug set at 1772', and the 2-7/8'' tubing re-hung at 1754'.

PAGE 1 OF 1 CASING TALLY DATE: January 31, 1977

FIELD East Barrow Gas FieldLEASE & WELL NO. So. Barrow Well No. 14 TALLY FOR 10 3/4" CASING

TMICL	FIRST MEASU	REMENT	CHECK MEASU	REMENT	WT
NO	FEET	00.2	FEET	.00'5	GA.
· . <u> </u>	Baker Sho	e.	11	83	
. 2	Baker Flo	at Col	lar l	80	
3	Landing J	oint_	15	00	
4	Kelly Bus	hing_	1	60	
5					
.6					
7					
8	İ.,				
9				-	
0					
TOTAL A			20	23	
					
1	Cont		21	2,	

TAIOL	FIRST MEASU	REMENT	CHECK MEAS	UREMENT	WT
NO	FEET	00.2	FEET	.0015	GЯ
1	<u> </u>	<u> </u>	32	04	
2		<u> </u>	30	93	
3		_	31	97	
4			28	76	
5			29	90	
6			29	96	
7			31	83	
8	ļ		30	01	
9			31	61	
0	,		28	67	
TOTAL D			305	68	

1	Cent.	31	21
2		31	62
3	Cent	30	32
4		29	86
5	Cent.	31	_90
6		32	24
. 7	Cent.	_ 30	42
8		2 9	32
9	Cent.	30	29
o		31	71
TAL B	<u> </u>	308	89

	Cent.	 32	23	
2		 29	87]
3	Cent,	 31	57]
4				Ī
5]				
6				
7				
8				<u> </u>
9			T	
0		 		
TOTAL E		93	67	

1	!	28	06	
1 2	4	31	99	
11	ļ	32	03	
	ĺ.	30	75	
;	· · · _	. 31	58	
.		.30	15	
, i	ļ.	32	68	
: 54		. 31	_ 68 .	
) 9		32	16	
0		32	93	
TOTAL C	· · · · · · · · · · · · · · · · · · ·	314	01	

TOTAL A		20	23
TOTAL B		308	89
TO FALL C		314	01_
] 100 AF 0	·		68
TO1-1 E		93	67
1, FAC PAGE		1042	48

CASING OR LINER CEMENT JOB

Lease .	East Bar	row Gas Fi	eld Well So.	Barrow No. 14	Date February	1, 1977
Size Cas	ing _ <u>10 3/</u>	<u>4''</u>	Setting Depth	1042'	Top (liner hanger)	
Hole 5/2	e <u>13 1/3</u>	2" Mud (Gradient53 p	si/ft (10.2 ppg)	Viscosity 33	
Casing E	quipment					
B <u>aker</u>		st	nge Baker Duple	x float locat	ed 36	feet
above sh	10P		(DV, FO)	collars located at		feet
and	-		feet			
Seven	Baker		centralizers located	middle shoe joint,	3, 5, 7, 9, 31	33.
casing	collars.		_ ·			
			scratchers located			
` -		· · ·				
Liner ha	enger and pack o	off (describe)		·		·
	·-			··		
Miscella	neous (baskets	etc)			- .	
			· ·			
Cement	(around shoe)					
	No.	_			Slurry	Slurry
	Sacks	<u>Brand</u>	<u>Type</u>	Additives	Weight	Volume
(1)	760 Ha	lliburton	Permafrost		14.8/15	706 cu ft
(2)						
Cement	through (DV, F	(O) Collar at	. feet			
	No. Sacks	Brand	Typa	A alaba sa	Slurry	Slurry
(3)	Grant 3	<u> </u>	Туре	<u>Additives</u>	Weight	Volume
					•	

PAGE _ 1 OF _ 1

TOTALC

400

CASING TALLY

DATE: February 6, 1977

FIELD East Barrow Gas FieldLEASE & WELL NO. So. Barrow Well No. 14 TALLY FOR ______ 7 " CASING

TMIOL	FIRST MEASU	REMENT	CHECK MEAS	UREMENT	WT	TOINT	FIRST MEAS	JREMENT	CHECK MEAS	SUREMENT
NO	FEET	00.8	FEET	.00'S	GR	NO	FEET	00'S	FEET	00.2
1	Float Sho	e	1	53	1	1	42	08		
. 2	хо		1	44		2	41	18		
3	Shoe Join	t	41	15		3	<u>3</u> 8	78	ļ	
4	<u>xo</u>		11	_50		4	41	48		
5	Float Col	lar	1	71		5	41	70		
6	<u>xo</u>		2	11		6	41	28	<u> </u>	
7					1	7	39	96		_[
8			-			8	41	10		
9				l		9	41	30	<u></u>	
0							41	65		
TOTAL A		ļ	49	44		TOTAL D	410	51		
1	41	93					41	05	40	18
2	40	20				2	40	43	39	53
3	40	_71		<u> </u>		3	41	05	41	29
4	39	45				4	39	62	40	58
5	39	97	·			5	42	75	41	55
.6	39	_60		_		6	39	38	40	82
. 7.	41	6.5		_		. 7	_41	83	39	55
8	34	15		1	·	8	38	83	(3	00)
9	42	20				9	41	39	CUT	OFF
٥	39	00		1		ŋ	40	10		
TOTAL 8	398	86				TOTAL E	406	43	280	50
								,		
1	40	19				TCTAL A	49	44		
2	34	10	· · ·	1		TOTAL B	398	86	-	† !
3		50	· ·	Ţ		TOTAL	400	28	! !	† :
;	40	68			!	TOTAL D	410	51		† :
3	41	48		1		OTAL E	406	43	280	50
. 6	40	85		į		TOTAL		· · · · · · · · · · · · · · · · · · ·		1
	.41.	80				2AGE			1947	00

CASING OR LINER CEMENT JOB

Lease <u>Raar Barrow Gas Field</u> Well <u>So. Barrow Well No. 14</u> Date February 6, 1977	
Size Casing 7" Setting Depth 1947.50" Top (liner hanger)	
Hale Size 8 1/2"" Mud Gradient	
Casing Equipment	
Baker shoe. Baker Duplex float located49,44 feet	
above shoe feet	
and teet	
centralizers located middle shoe joint, 3, 5, 7, 9, 11, 13,	
15, 17, 46, 47, casing collars.	
scratchers located	
Liner hanger and pack off (describe)	
Miscelfaneous (baskets, etc.)	
· · · · · · · · · · · · · · · · · · ·	
Cement (around shoe)	
No. Slurry Slurry Surry Sacks Brand Type Additives Weight Volume	
760 Halliburton Permafrost 14.8/15 706.80 cu	
(2) 125 Halliburton G 2% Calcium Chloride 15.8 143.75 cu	
Cement through (DV, FO) Collar at feet	
No. Sturry Sturry Sacks Brand Type Additives Weight Volume	
:3	

PAGE 1 OF 1

LINER TALLY DATE: February 22, 1977

FIELD East Barrow Gas FieldLEASE & WELL NO. So. Barrow Well No. 14 TALLY FOR _ 5 1/2" LINER

TAIOL	FIRST MEASU	REMENT	CHECK MEASU	REMENT	WT	JOINT	FIRST MEASU	REMENT	CHECK MEAS	UREMENT	wT
NO	FEET	00.2	FEET	00°S	GR	NO	FEET	.00'\$	FEET	.00'\$	GR
1	41	75	Shoe			1					
2	41	95	Perf	-		2				 	
3	41	37	Perf			3					
4	42	95	Perf			4				1	
5	40	79	Perf			5					
6	42	04	· · - · - · - · - · · · · · · · · · · ·			6					
7	41	90				7					1
8	0	7.3	XO			8					
9	13	<u>89</u>	<u>Hanger</u>	& Pack	er	9					
0						ļ <u> </u>		ļ		<u> </u>	
TOTAL A	307	37				TOTAL D	<u> </u>				
						· · · · · · · · · · · · · · · · · · ·					
1		·	ļ;			<u>-</u>		1		<u> </u>	
2	··-					2					
3						3				.	
4	-	- · -				4	-·· - · -·		<u>_</u>	<u> </u>	
5		· - —				5		ļ. <u></u> ļ		-l [
G	·		-	·		<u>5</u>	<u> </u>	ļ <u> </u>		<u> </u>	
7			···			- 7	· ·	ļļ	- .		
a i	·- · · · · · · · · · · · · · · ·					8	-	ļ • · · · · ·		<u> </u>	
9						9					
Ú											
TOTAL B		<u></u>	L;			TOTAL E				<u> </u>	
			·			ı ! 					
'					i	FOTALA				<u> </u>	
- 2	·					101:45					
						TOTAL C					
4	- · <u>-</u>		!			10TAL D]	
5		<u> </u>				FOTAL E		<u> </u>			
f				.		PAGE	·				
.7				·	İ						
. 8-				·· · ·							
9		-									
7(TAL ()											
TOTAL C				- 1							

PAGE 1 OF 1_

TUBING TALLY DATE: February 22, 1977

FIELD EastBarrow Gas 1	Field LEASE & WELL NO.	So. Barrow Well No. 14	TALLY FOR	2 7/8 "	TUBING

101NT	FIRST MEASUREMENT		CHECK MEASU	REMENT	wT
NO	FEET	00.8	FEET	00°S	GЯ
ļ	31	56			
2	31	75			
3.	29	6.4	·		
4 .	31	55			
5	31	28	,		
6_	30	58			
	3 <u>I</u>	62			
8	31	16			
9	31	40			
0	30	57			
TOTAL A	311	<u> </u>			

			FOR Z 710		D TIMO
JOINT	FIRST MEASUREMENT		CHECK MEASUREMENT		WT
NO	FEET	.00'\$	FEET	.00'S	GR
1	31	43	30	55	
2	30	64	30	60	
3	30	54	31	58	
4	31	63	3i	28	
5	30	44_	31	74	
6	31	30	31	48	
7	31	45	31	54	
8	31	40_	31	68	
9	31	35	31	70	
0	30	88	30	55	
TOTAL D	311	06	312	70	

,				
	1	31	16	
	2	31	29	
	3	3.1	45	
	4	31	47	
	5 j	29	74	<u> </u>
	5	. 29	91_	
	7	. 29	8,5	
į	8	31	82	
	ŷ.	30	62	
	, l	31	61	
[101A]	<u> ;</u>	308	92	

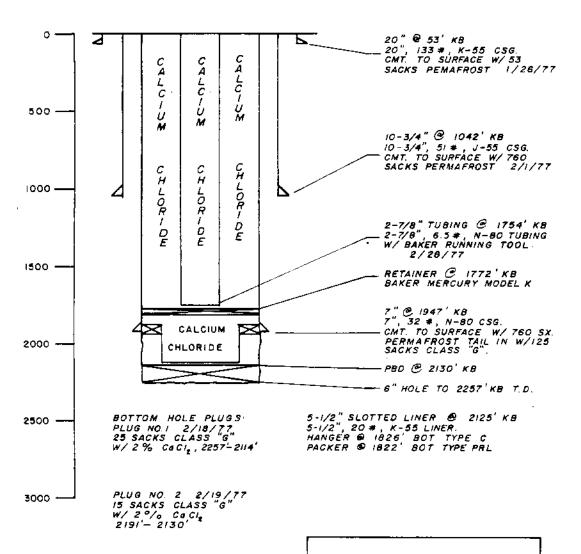
	30	87	30	90	
2	31	70_	31	60	
3	30	88	29	68	
4	31	_02	31	50	
5	_31	67	30	92	
<u>6</u>	31	57	30	58	-
7	31	50	30	65	
8	. 29	93	_04	00	
! 9	29	84			
ņ	31	50			
· JTAL £	_ 310	48	219	85	

1	30	46
	31	84
·	30	94
	31	54
. 5	30	64
	30	86
	30	25
ِ د	. 31	70
9	31	05
0	31	61
COTAL C	310	. 89

TOTAL A	311	11	_312	70
TOTAL B	308	92	219	1 85 £ 85
TOTALIC	310	89		<u>L</u> i
TOTAL D	311	06		
TOTAL E	310	48		
TOTAL		1		T
PAGE			2085	01

Landed Below KB: 12 00 Total: 2097

WELLBORE SCHEMATIC



SOUTH BARROW NO. 14

2300 FWL AND 1800 FNL.

SECTION 25, T22N, RITW, UM.

PAD LEVEL 17 EST, KB 31 EST.

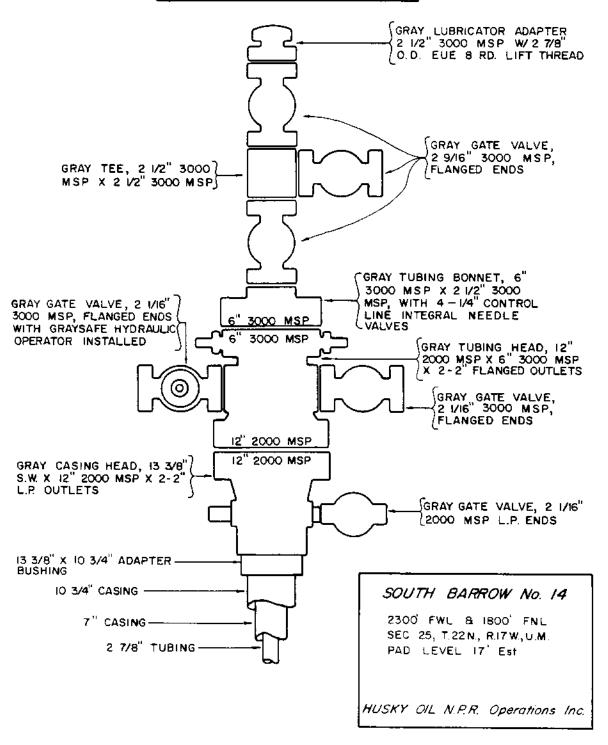
HUSKY OIL NPR OPER.

NAVAL PETROLEUM RESERVE

NO. 4

SURFACE EQUIPMENT

SOUTH BARROW No. 14



March 18, 1977

MEMORANDUM TO FILE - SOUTH BARROW WELL NO. 14

SUBJECT: Pressure Buildup Survey and Open Flow Potential Analysis

I. Pressure Buildup Analysis

A. Summary of Results:

- Initial reservoir pressure is extrapolated to be 963 psia.
- 2. The kh product has been calculated to be 346.28 md. ft.
- 3. Assuming a productive thickness of the main producing sand is 22' from the logs, the calculated average permeability to gas is 15.74 md.
- The average calculated mobility of gas is 1356.90 md./cp.
- 5. The skin effect calculated 1 hour after shut in is -1.78. The corresponding pressure difference is -23 psi.
- 6. The effective wellbore radius is calculated to be 1.48 ft.
- 7. The actual reservoir productivity index is calculated to be 17.32 MCFD/psi.
- 8. The order of magnitude radius of investigation for the transient pressure buildup is calculated to be 270 ft.

B. Discussion:

The bottomhole pressure buildup survey on the South Barrow Well No. 14 was conducted as a 72 hour shutin commenced after a stable flow period of 10 hours, following and as a part of the Open Flow Potential Test conducted on the well. The pressure data was recorded on Amerada pressure gauges run on wireline and hung in the well opposite the main producing sand. The raw data is presented in Camco report for the subject well and test. Further analysis of the data was necessary to define the pressure buildup response. The data analysis procedure is outlined below.

The data were replotted in the conventional gas analysis manner and are attached as figures 1, 2, and 3. Critical properties of the gas were calculated from the gas compositional analysis of samples from DST No. 1, analyzed by Chemical and Geological Laboratores of Alaska, Inc. Since the production history of the well prior to shut in had consisted of several flow rates, the multiple rate history was incorporated into the analysis. Figure 4 depicts the rate, time history of the well.

C. Results:

- The initial reservoir pressure of 963 psia was derived from the extrapolation of the curve of figure 3. The value agrees with the final measured values obtained during the final 26 hours of the pressure buildup.
- From analysis of the slope of the straight line portion of the buildup, the kh product was calculated to be 346.28 md. ft. Average reservoir flowing temperature and pressure were used to calculate the average physical properties of the gas.
- 3. The calculation of average permeability requires the assumption of a productive thickness and the requirement that the total production come from this thickness. Log analysis indicates the thickness of the main productive sand to be 22 ft. As a result, the calculated average permeability to gas is 15.74 md.
- The average mobility to gas is calculated to be 1356.90 md./cp. at average reservoir flowing temperature and pressure.
- The calculated skin effect is -1.78, and the corresponding pressure difference is -23 psi. Since the well had been recently drilled and not subject to stimulation treatment, it is unlikely that a negative skin should be evidenced at this time. However, the determination of the skin is a function of the flow rate and pressure distribution around the wellbore. As such, it is sensitive to the completion scheme employed. Since the well is completed with a slotted liner type completion, other intervals are open to production besides the main sand. This being the case, the assumption that the entire production is attributable to the main sand may be slightly in error. Minor production may be derived from other zones, resulting in an abnormally low skin calculated in the main sand. Qualitative inspection of the buildup curve indicates that some small layering effect, probably in the absence of crossflow, is present with a reservoir pressure nearly the same as the main sand.
- As a result of the above, and assuming for practical purposes that the entire production is attributable to the main sand, the effective wellbore radius is calculated to be 1.48 ft.
- The reservoir productivity index is calculated to be 17.32 MCFD/psi.
- Using the van Poolen equation as an order of magnitude estimate, the radius of investigation for the transient

pressure buildup is calculated to be 270 ft. It must be remembered that this is an estimate only.

II. Open Flow Potential Analysis

A. Summary of Results:

- The Absolute Open Flow Potential of the Well is 3,700 MCF/D.
- The exponent (n) of the back-pressure curve is 0.56.
- 3. The angle of the slope of the back-pressure equation is $60.95^{\rm o}$.

B. Discussion:

The Open Flow Potential Test was conducted as a multi-point stabilized back pressure test.

Minor problems were encountered with hydrate formation but were overcome without incident by lubricating alcohol and blowing down as required.

Flow measurements were taken by means of a 2ln.critical flow prover. Bottomhole flowing pressures were calculated from flowing surface pressures by means of the Smith Equation, at average values of pressure, temperature and physical properties. Reservoir pressure was determined from the pressure buildup analysis discussed previously.

The data were plotted and analyzed using the conventional multipoint back-pressure analysis and plot and is attached as figure 5.

C. Results:

1. Data used in plotting back-pressure curve.

Q (MCF/D)	Pwf. (pela)		
126.17 MCF/D	948 psia		
485.57	930		
1,091.29	911		
1,721.44	834		
2,755.36	628		
3,285.36	741		

The Absolute Open Flow Potential for the well is read from the curve as being 3,700 MCF/D.

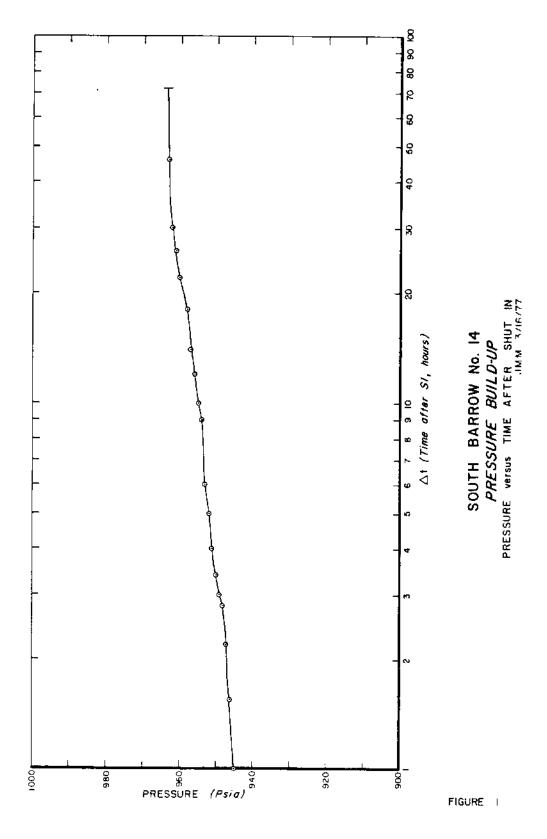
 The exponent (n) of the back-pressure equation, taken as the reciprocal of the slope of the curve, is found to be 0.56. This value is found to fall within the accepted limits of 0.50 and 1.00. The angle of the slope of the back-pressure curve is found to be 60.95°. This value falls within the accepted limits of 45.0° and 63.5°.

III. Conclusions

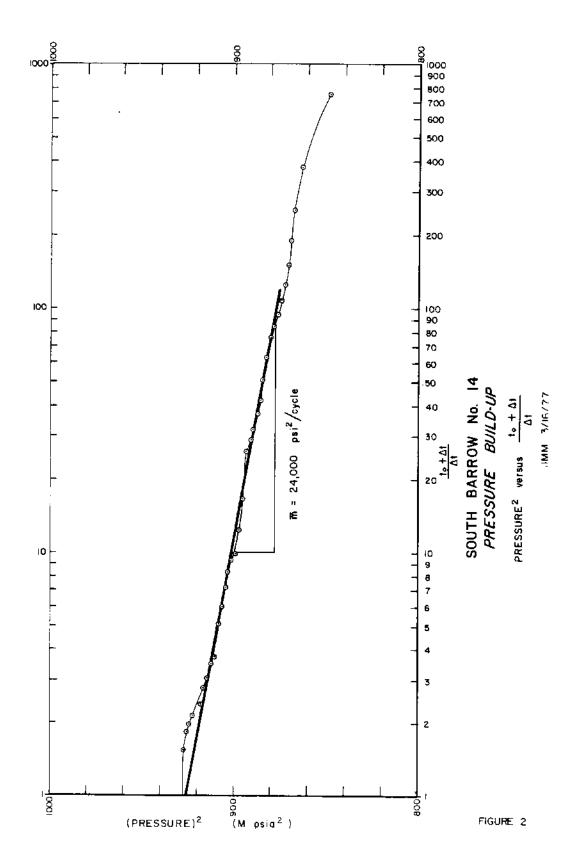
The testing equipment and procedures were adequate to effectively determine the basic reservoir properties and to determine the Open Flow Potential of the well. Should more rigorous determinations be necessary, the test equipment should be upgraded and testing procedures carefully planned and executed to derive the maximum useful data.

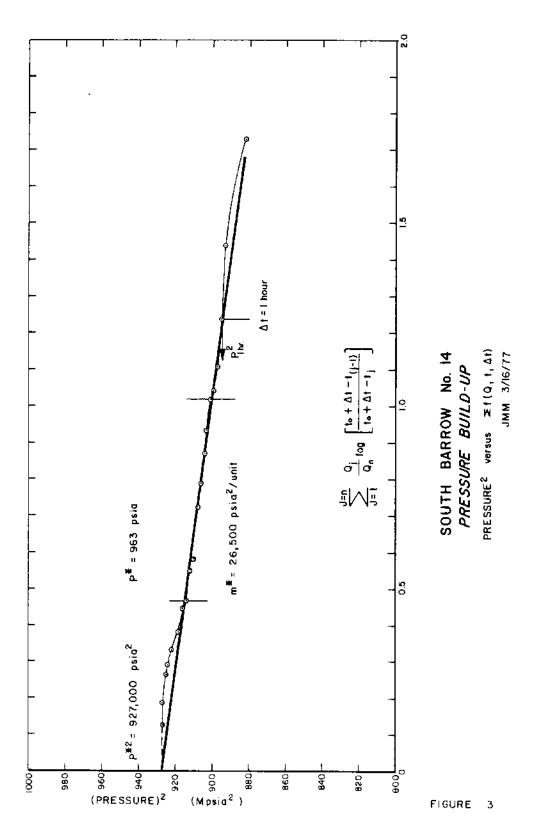
J. M. McCarthy Drilling Engineer

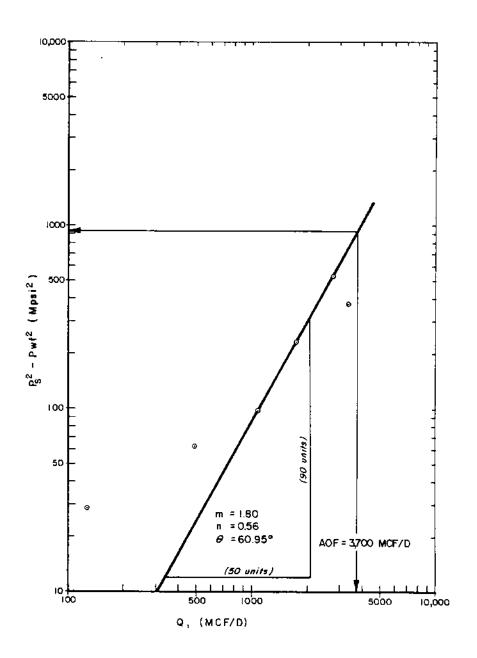
Attachments



T.-5



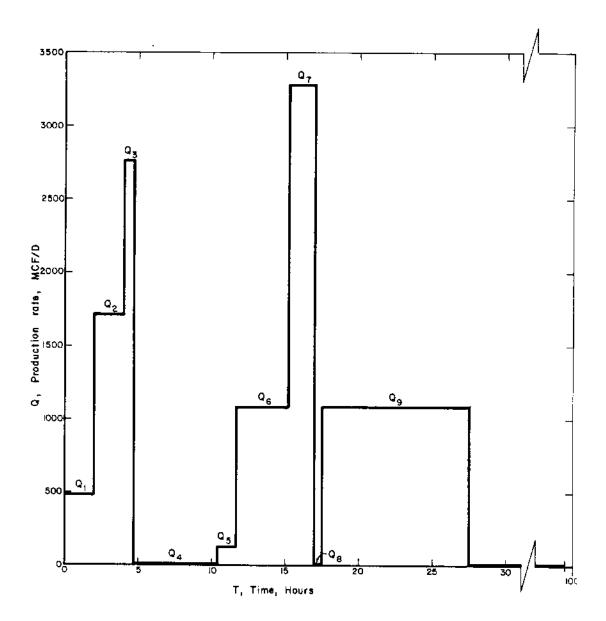




SOUTH BARROW No. 14

MULTI-POINT, OPEN FLOW POTENTIAL TEST
JMM 3/16/77

FIGURE 5



SOUTH BARROW No. 14

RATE versus TIME JMM 3/16/77

FIGURE 4



CHEMICAL & GEOLOGICAL LABORATORIES OF ALASKA, INC.

TELEPHONE (907.) 279-4014

P.O.BOX 4-1276 ANCHORAGE, ALASKA 99509 4649 BUSINESS PARK BLVD.

GAS ANALYSIS REPORT

Сотралу_	Husky Oil Company	_{Date} February	14, 1977	Lab. No.	5434
Well No	South Barrow Number 14	Location		Lau. 140	
Field	Naval Petroleum Reserve, No. 4	Formation			
County		Depth	1950-2100	feet	
State	Alaska	Sampling point	<u> </u>	1000	
		mperature° F;	Container au		
Remarks	psig: Dampie pressure: Parg; Te	mperatore r;	Comainer noi	mb a r	
~					
				······································	
	Component		Mole % or Valume %		
			TOICHING A		
	Oxygen		0		
	Nitrogen	· · · · · · · · · · · · · · · · · · ·	7 63		
	Carbon dioxide				
	Hydrogen sulfide				
	Helium		0.03		
	Methane		97.11	Gallons	
	Ethane		0.57	per MCF	
	Propane , , , ,		0.03_	0.008	
	Iso-butane		0.01_	0.003	
	N-butane . , . ,		0.14_	0.044	
	Iso-pentane,		0.09_	0.033	
	N-pentane		0.06	0.022	
	Hexanes		0.07_	0.029	
			<u>Trace</u>	Trace	
	To	stal ,	100.00	<u>0.139</u>	
			•		
	COM of sections & blakes for the		٥	084	
	GPM of pentanes & higher fraction,				
	Gross btu cu. ft. @60° F. & 14.7 psia (dry b	:.)	1006		
	Specific gravity (calculated from analysis)	Jasisk		572	
	Specific gravity (measured)		0.	570	
	atmance Brasis (messenses)			<u> </u>	
	Remarks:				